

**UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN**

NALCO COMPANY LLC, ECOLAB INC.,
HAZELMERE RESEARCH LTD., ECOLAB
USA INC., NALCO HOLDING COMPANY,
NALCO U.S. 2 INC., and MOBOTEC AB,
LLC,

Plaintiffs,

v.

WISCONSIN PUBLIC SERVICE
CORPORATION d/b/a WESTON POWER
PLANT (UNIT 3), and ARBOR FUELS
COMPANY LLC,

Defendants.

WISCONSIN PUBLIC SERVICE
CORPORATION d/b/a WESTON POWER
PLANT (UNIT 3), and ARBOR FUELS
COMPANY LLC,

Counterclaimants,

v.

NALCO COMPANY LLC and HAZELMERE
RESEARCH LTD.,

Counterclaim Defendants.

Civil Action No.: 3:18-CV-279

(Related case caption follows on next page)

**DEFENDANTS' RESPONSE TO PLAINTIFFS' ADDITIONAL PROPOSED FINDINGS
OF FACT IN SUPPORT OF THEIR RESPONSE TO DEFENDANTS' MOTION FOR
PARTIAL SUMMARY JUDGMENT**

NALCO COMPANY LLC, ECOLAB INC.,
HAZELMERE RESEARCH LTD., ECOLAB
USA INC., NALCO HOLDING COMPANY,
NALCO U.S. 2 INC., and MOBOTEC AB,
LLC,

Plaintiffs,

v.

WISCONSIN POWER AND LIGHT
COMPANY, WISCONSIN PUBLIC SERVICE
CORPORATION, MADISON GAS AND
ELECTRIC COMPANY, d/b/a COLUMBIA
ENERGY CENTER (UNIT 1), and PORTAGE
FUELS COMPANY LLC,

Defendants.

WISCONSIN POWER AND LIGHT
COMPANY, WISCONSIN PUBLIC SERVICE
CORPORATION, MADISON GAS AND
ELECTRIC COMPANY, d/b/a COLUMBIA
ENERGY CENTER (UNIT 1), and PORTAGE
FUELS COMPANY LLC,

Counterclaimants,

v.

NALCO COMPANY LLC and HAZELMERE
RESEARCH LTD.,

Counterclaim Defendants.

Civil Action No.: 3:18-CV-280

878.

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¹ Plaintiffs' citations appear to be to the docket in Case No. 3:18-CV-280. Therefore, unless otherwise noted, Defendants' citations to the docket also refer to Case No. 3:18-CV-280. When specific circumstances require citation to the docket for Case No. 3:18-CV-279, the citation is identified as "Case 279, D.I # [number]."

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889. [Intentionally omitted].

890. The Delaware corporate record of GNE shows that the status of GNE has been “Void” and “Tax Delinquent” as of “3/1/2004” and the last annual report was filed in 2001. C. Klingman Decl. ¶¶ 16 and 17 (Exhibits 86 and 87) (Delaware Corporate Record of GNE).

Response: Undisputed.

891. [REDACTED]

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[REDACTED]

892. [REDACTED]

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[REDACTED]

893. The British Columbia case, *Remedy Drug Store Co. Inc. v. Farnham*, 2015 ONCA 576 is attached hereto for the Court's convenience. Klingman Decl. ¶ 8 (Exhibit 78).

Response: Undisputed that a report of the named case is attached to the Klingman Declaration of May 14, 2019.

894. The British Columbia case, *Dosanjh v. Liang*, 2015 BCCA 18 is attached hereto for the Court's convenience. Klingman Decl. ¶ 5 (Exhibit 75).

Response: Undisputed that a report of the named case is attached to the Klingman Declaration of May 14, 2019.

895. The British Columbia case, *Brown v. Belleville (City)*, 2013 ONCA 148 is attached hereto for the Court's convenience. Klingman Decl. ¶ 2 (Exhibit 72).

Response: Undisputed that a report of the named case is attached to the Klingman Declaration of May 14, 2019.

896. The British Columbia case, *Bauer v. The Bank of Montreal*, [1980] 2 S.C.R. is attached hereto for the Court's convenience. Klingman Decl. ¶ 3 (Exhibit 73).

Response: Undisputed that a report of the named case is attached to the Klingman Declaration of May 14, 2019.

897. The British Columbia case, *Hawrish v. Bank of Montreal*, [1969] S.C.R. 515 is attached hereto for the Court's convenience. Klingman Decl. ¶ 7 (Exhibit 77).

Response: Undisputed that a report of the named case is attached to the Klingman Declaration of May 14, 2019.

898. The British Columbia case, *Carman Construction v. C.P.R.*, [1982] 1 S.C.R. is attached hereto for the Court's convenience. Klingman Decl. ¶ 4 (Exhibit 74).

Response: Undisputed that a report of the named case is attached to the

Klingman Declaration of May 14, 2019.

899. The British Columbia case, *Gallen v. Allstate Grain Co. Ltd.* 1984 BCCA is attached hereto for the Court's convenience. Klingman Decl. ¶ 6 (Exhibit 76).

Response: Undisputed that a report of the named case is attached to the Klingman Declaration of May 14, 2019. The name of the case is actually *Gallen v. Butterley*.

900. The British Columbia case, *Shelanu Inc. v. Print Three Franchising Corp.*, 2003 ONCA is attached hereto for the Court's convenience. Klingman Decl. ¶ 9 (Exhibit 79).

Response: Undisputed that a report of the named case is attached to the Klingman Declaration of May 14, 2019.

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905. Dr. Wilcox, during her deposition, when shown drawings from Defendants' own boiler manuals, could not identify where "flue gas" began, or how to make that determination. Dkt. 74, Deposition of Jennifer Wilcox, Ph.D., March 29, 2019, pgs. 321:7–330:25.

Objection: Pl. Supp. PFF ¶ 905 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph and Sec. I.B.6, because it recites Plaintiffs' argument, rather than a factual proposition.

Response: Disputed as unsupported and contrary to the evidence. Plaintiffs' cited evidence—the deposition transcript of Wilcox at 128:14–129:10; 321:1–331:4—does not support the stated proposition. Rather, the record shows that during Wilcox's deposition, Plaintiffs' counsel asked Wilcox to answer questions based on a hypothetical that did not comport with reality. Wilcox

explained that “the flue gas is in the upper region,” but she could not be more exact because the cartoon she was being shown was not drawn to scale and the hypothetical was not realistic. D.I. # 74, Wilcox Dep. 321:1–331:4. When provided appropriate materials, Dr. Wilcox has consistently opined on the meaning of the term “flue gas” as used in the ’692 Patent and how that meaning would apply to the accused plant systems. D.I. # 75, First Wilcox Report ¶ 110; D.I. # 76, Second Wilcox Report ¶¶ 21, 28, 33–34.

906. Steam defines dry flue gas as “[t]otal gaseous products of combustion excluding moisture.” Dkt. 38-15 (*Steam*), pg. 10-16.

Objection: Pl. Supp. PFF ¶ 906 is vague and ambiguous. Plaintiffs have not defined “flue gas,” and it is not clear how the term is being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Moreover, Pl. Supp. PFF ¶ 906 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not correctly identify where in the record the evidence is located.

Response: Undisputed that *Steam* contains the stated definition; that does not purport to be a universally applicable definition, and the referenced statement is not admissible for all purposes.

907. U.S. Patent 5,817,282 identifies three alternative ways of introducing chemicals into a “flue,” i.e., incorporating them into the fuel, injecting them into the combustion zone, or injecting them into the flue, but again does not indicate that only the third way is “injecting ... into flue gas.” Dkt. 95-52 (U.S. Patent 5,817,282).

Objection: Pl. Supp. PFF ¶ 907 is vague and ambiguous because Plaintiffs have not defined “flue gas” and it is not clear how the term is being used in this

asserted fact. Also, the term “flue gas” is hotly contested in this litigation.

D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Further, Pl. Supp. PFF ¶ 907 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it recites Plaintiffs’ argument, rather than a factual proposition, and Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported. The quote referenced in Pl. Supp. PFF ¶ 907 is taken out of context. The patent states as follows “[t]his invention related to the method of reducing acid nitrogen oxides from combustion flue gas by injecting an additive directly into the combustor, combustion zone or into the flue gas to reduce said nitrogen oxides.” D.I. # 95–52 (The ‘282 Patent, at 1:8–11.). Additionally, Pl. Supp. PFF ¶ 907 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the ’282 Patent, which is not sponsored by sworn testimony. Accordingly, this evidence is an undisclosed and unqualified expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c). Finally, that the patent contains this assertion does not make the patent or the assertion admissible for all purposes.

908. Mr. Oehr’s provisional patent application does not use the phrase “injecting ... into flue gas.” Dkt. 95-161 (Oehr Provisional Application).

Response: Undisputed.

909. Notably, when Oehr’s provisional patent application refers to the example of injecting a halogen compound into the post-superheater region of a power plant, it refers to it as “fir[ing] into the cold section of a coal combustor” and “fir[ing] ... into the post superheater section of a coal combustor.” Dkt. 95-161, (Oehr Provisional Application) pgs.4-5.

Objection: Pl. Supp. PFF ¶ 909 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it recites Plaintiffs’ argument, rather than a factual proposition.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the Oehr Provisional Application—does not support the stated proposition. Rather, the record shows that the provisional application states as “Concept A,” “[f]ire a low level of a halogen such as a halide salt . . . sprayed for example as an aerosol into the cold section of the coal combustor (e.g. post superheater section) in the presence or absence of a halide oxidation catalyst or catalyst precursor to effect enhanced elemental mercury oxidation to a mercuric halide . . . susceptible to complexation with alkaline bituminous coal ash derived from . . . fly ash.” The quoted line does not use the word injection.

910. U.S. Patent 8,142,548 specifically teaches that the injection of coal ash from partial coal combustion is “injected into the ductwork” of the power plant “anywhere in between combustion chamber 12 and particulate collection device 30.” Dkt. 109-13, (U.S. Patent 8,142,548) 3:34-37.

Objection: Pl. Supp. PFF ¶ 909 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it recites Plaintiffs’ argument, rather than a factual proposition.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the ‘548 Patent at 3:34–37—does not support the stated proposition. Rather, the record shows that the cited portion of the patent states, “[f]or example, at 98% SO₂ removal and a ca/S at the furnace of 1.4 mole Ca/mole SO₂ the concentration of reactive calcium species in the ash recycle stream (70) would be approximately 10%. It becomes less and less useful to recycle ash from the final particulate

collector 54 as the sorbent utilization increases.” Moreover, nowhere in the patent does the word “ductwork” appear.

911. In the Northern District of Illinois case, Chem-Mod explained to the Federal Circuit that “the district court correctly held that the claims of the ‘692 Patent cannot plausibly cover [Chem-Mod’s] process.” Fed. Cir. Doc. 21 at 36. C. Klingman Decl. ¶ 23 (Exhibit 93) (Appellee’s Brief).

Response: Undisputed, but immaterial to Defendants’ motion.

912. In the Northern District of Illinois case, Chem-Mod made it clear that the claim scope issue presented to the district court, and to the Federal Circuit on appeal, was identical the issue presented here. C. Klingman Decl. ¶ 23 (Exhibit 93) (Appellee’s Brief).

Objection: Pl. Supp. PFF ¶ 912 violates the Court’s Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported. Plaintiffs’ do not cite a specific page in the “Appellee’s Brief” and the brief as a whole does not stand for the proposition asserted. The Northern District of Illinois case preceded this case, and no statements were made to the Northern District of Illinois concerning the “claim scope issue” in this case.

913. In the Northern District of Illinois case, Chem-mod explained that Nalco’s complaint alleged “three theories of how use of the Chem-Mod Solution could involve ‘injecting a bromide compound that is a thermolabile molecular bromine precursor into [coal combustion] flue gas.” C. Klingman Decl. ¶ 23 (Exhibit 93) (Appellee’s Brief), p. 37.

Objection: Pl. Supp. PFF ¶ 913 is vague and ambiguous because Plaintiffs have not defined “flue gas” or “injecting into coal combustion flue gas,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Further, Pl. Supp. PFF ¶ 912 violates the Court’s

Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed and immaterial to Defendants' motion. The referenced statements were Chem-Mod's characterization of Nalco's position in that litigation, not a statement of Chem-Mod's position of what action constitutes "injecting a bromide compound that is a thermolabile molecular bromine precursor into flue gas" within the meaning of the '692 Patent.

914. In the Northern District of Illinois case, Chem-mod described the second of these theories as being that "'injection' occurs when refined coal is fed into the furnace for combustion, where it immediately encounters the purportedly ubiquitous 'coal combustion flue gas.'" C. Klingman Decl. ¶ 23 (Exhibit 93) (Appellee's Brief).

Objection: Pl. Supp. PFF ¶ 914 is vague and ambiguous because Plaintiffs have not defined "coal combustion flue gas" or "injection," and it is not clear how the terms are being used in this asserted fact. Also, the term "flue gas" is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion. Further, Pl. Supp. PFF ¶ 912 violates the Court's Standing Order on Motions for Summary Judgment, Secs. I.B.4 and I.C.1, because the citation does not identify with specificity where in the record the evidence is located.

Response: Disputed as unsupported. Plaintiffs' do not cite a specific page in the "Appellee's Brief" and the brief as a whole does not stand for the proposition asserted. Furthermore, the referenced statement is Chem-Mod's characterization of Nalco's position in that litigation, not a statement of Chem-

Mod's position of what action constitutes "injection" within the meaning of the '692 Patent.

915. Chem-Mod told the Federal Circuit that "the [N.D. Ill] district court correctly held that the claims of the '692 Patent cannot plausible cover that process. C. Klingman Decl. ¶ 23 (Exhibit 93) (Appellee's Brief).

Response: Undisputed, but immaterial to Defendants' motion.

916. The theory that Defendants described as the "first theory" in the Northern District of Illinois was only an incomplete characterization of the "second theory" and was not put forward by Nalco. C. Klingman Decl. ¶ 23 (Exhibit 94) (Appellant's Reply Brief), pg. 3, n. 4.

Objection: Pl. Supp. PFF ¶ 916 is vague and ambiguous because Plaintiffs have not defined "first theory" or "second theory," and it is not clear how the terms are being used in this asserted fact. Further, Pl. Supp. PFF ¶ 916 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it recites Plaintiffs' argument, rather than a factual proposition.

Response: Disputed. Nalco pleaded the "first theory" as a distinct way to perform the '692 Patent's method step of injection into flue gas but abandoned that theory, and changed position in the course of the Northern District of Illinois litigation. D.I. # 134-21, Appellees' Brief at 24–25.

917. The third theory that Defendants described in the Northern District of Illinois was one of the equivalents positions Nalco also asserts in this case. C. Klingman Decl. ¶ 23 (Exhibit 93) (Appellee's Brief) pgs. 27-28.

Objection: Pl. Supp. PFF ¶ 917 is vague and ambiguous because Plaintiffs have not defined "third theory" or "the equivalents" and it is not clear how the terms are being used in this asserted fact. Further, Pl. Supp. PFF ¶ 917 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it recites Plaintiffs' argument, rather than a factual proposition.

Response: Disputed as unsupported. Plaintiffs have not identified a “position” in this case for comparison, and the Appellee’s brief to the Federal Circuit in the Northern District of Illinois case does not contain a statement of Nalco.

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937. Nalco did not become aware of Chem-Mod until the end of 2010. Dkt. 64, Deposition of David Johnson, February 26, 2019, pg. 9:12-21 (“I became aware of the existence of the Section 45 for Mercury Control the latter part – probably November, December time frame of 2010.”).

Response: Disputed as unsupported. Plaintiffs cited testimony—the deposition of Johnson at 9:12–21—does not support the stated proposition.

Johnson did not state that he did not become aware of Chem-Mod until the end of 2010. Rather, he stated that he became aware of “the existence of Section 45 for mercury control” in the “latter part” of 2010. D.I. # 64, Johnson Dep. 9:12–21.

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940. Nalco has connections with many power plants in the U.S. Dkt. 99-1 (NALC00126028-126035).

Objection: Pl. Supp. PFF ¶ 940 is vague and ambiguous. Plaintiffs have not defined “connections” or “many power plants,” and it is not clear how the terms are being used in the asserted fact.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—D.I. # 99-1—does not support the stated proposition. D.I. # 99-1 does not describe “connections with . . . power plants.” Further, to the extent D.I. # 99-1 is offered to prove that Nalco has connections with many power plants in the U.S., it is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

969.

[REDACTED]

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[REDACTED]

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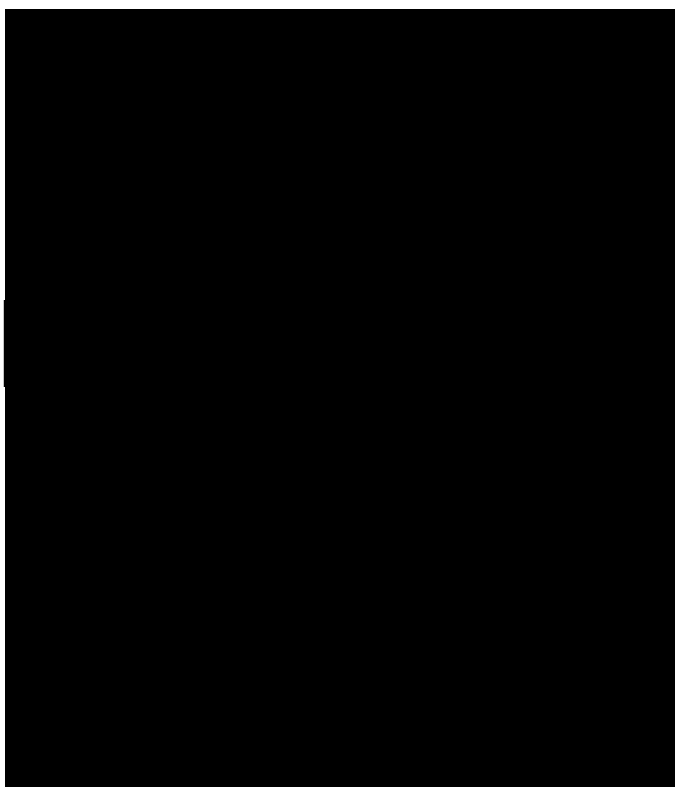
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970.

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971. [REDACTED]

[REDACTED]

[REDACTED]

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972. [REDACTED]

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[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

973. [REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

974.

975.

976. The flow of flue gas upward in the furnace results in part from a pressure differential in the furnace. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 164, 187, 192, 292.

Objection: Pl. Supp. PFF ¶ 976 is vague and ambiguous. Plaintiffs have not defined “flue gas” or “the furnace,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this

litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Undisputed, to the extent Defendants understand “flue gas” to mean “the gases in the region from above the combustion zone through the stack outlet that result from the substantially complete combustion of coal.” D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2.

977. The flow of flue gas upward in the furnace is caused in part by a fan-induced lower pressure drawing the gases out of the furnace. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 164, 187, 192, 292.

Objection: Pl. Supp. PFF ¶ 977 is vague and ambiguous. Plaintiffs have not defined “flue gas” or “the furnace,” and it is not clear how the terms are being used in this asserted fact. Also, the term “flue gas” is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the First Fry Report at ¶¶ 164, 187, 192, 292—does not contain the word “fan” or support the stated proposition that “[t]he flow of flue gas upward in the furnace is caused in part by a fan-induced lower pressure drawing the gases out of the furnace.”

978. The pressure differential in the furnace is caused in part by a fan-induced lower pressure drawing the gases out of the furnace. Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶¶ 164, 187, 192, 292.

Objection: Pl. Supp. PFF ¶ 978 is vague and ambiguous. Plaintiffs have not defined “the furnace,” and it is not clear how the term is being used in this asserted fact.

Response: Disputed as unsupported. Plaintiffs’ cited evidence—the First

Fry Report at ¶¶ 164, 187, 192, 292—does not contain the word “fan” or support the stated proposition that “the pressure differential in the furnace is caused in part by a fan-induced lower pressure drawing the gases out of the furnace.”

979.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

980. The book “Steam: Its Generation and Use” states the following:

First, follow the fuel and products of combustion (flue gas) through the system. The fuel handling system stores the fuel supply (coal in this example), prepares the fuel for combustion and transports it to the steam generator. The associated air system supplies air to the burners through forced draft fan. The steam generator subsystem which includes the air heater burns the fuel air mixture recovers the heat and generates the controlled high pressure and high temperature steam. The flue gas leaves the air heater and passes through particulate collection and sulfur dioxide SO₂ scrubbing systems where pollutants are collected and the ash and solid scrubber residue are removed. The remaining flue gas is then sent to the stack through an induced draft fan.

Dkt. 38–15 (Steam: Its Generation and Use (“Steam”), 40th Edition) at p. 1–3.

Response: Undisputed that *Steam* contains the quoted statement, but that does not make the statement admissible for all purposes.

981.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

982. Dr. Fry's report states:

Defendants' third proposed construction is of the claim phrase: "a bromide compound that is a thermolabile molecular bromine precursor." Defendants' construe this phrase to mean "The bromide compound is heated to form Br₂." While I believe this construction is at best incomplete, and do not believe this is how a person of ordinary skill would construe this term, even if were so construed, it is my opinion that [REDACTED]

[REDACTED]

Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 186.

Response: Undisputed that the First Fry Report contains the quoted statement.

983.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

984.

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[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

985.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

986. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

987. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

988.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

989.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

990. The claims of the '692 Patent do not specify how much thermolabile molecular bromine precursor must be "injected . . . into said flue gas." Dkt. 38-1 at claims.

Response: Undisputed.

991. Dr. Wilcox testified as follows:

Q. In theory, combustion has to end somewhere?

A. Well, it turns out that when you burn coal, you have something called loss on ignition. And what that means is the carbon in the coal is not completely oxidized and every coal-fired utility will have some small amount. Now, the less they have, the more efficient their process is. But what that means is -- and you don't always have complete combustion. And so it's very difficult to say take a pen and draw where that combustion zone ends. What's going to happen is you do have a gradient in temperature. There's this continuity in temperature, right; you pass through every temperature between the combustion zone being high and then the upper furnace being much lower. And so can I say that there's not a particle of carbon that's unburned that doesn't interact with oxygen at a slightly lower

Q. I think we're mixing two different concepts here, and I want to see if I can get it clear. You've made reference to it's difficult to define where combustion -- where the combustion zone ends, correct? Because of these continuing potential trace combustions that could go on, right? Is that right?

A. Sure.

Q. But I believe you've also said that you don't consider the gases in the boiler to be flue gases until they're past a point at which combustion ends, correct?

Q. If I said it wrong, correct me.

A. I would look the whole system and generally characterize wherever the byproducts of combustion are dominant and combustion has mostly completed, which would be the upper region of the furnace, mostly completed, still leaves room that there might be something, but that that region, the upper region of the furnace where combustion is mostly completed would constitute flue gas, but not below where combustion is still ongoing.

Q. And how would you define "mostly completed"?

A. It's a great question. I think it leaves room, and it's not something that's

exact.

Q. But how would you define it?

A. As a majority. So, for instance, you know, there would be some kind of -- in the fuel-rich region, there could be, you know, that's where the flue gas is starting to evolve, it moves quickly to the upper region of the furnace, combustion is mostly complete; so the gases in the upper region of the furnace comprise mostly a flue gas.

Dkt. 74, Jennifer Wilcox, Ph.D. Deposition, March 29, 2019, at 123:4–125:16.

Response: Disputed as incomplete. The full text of Wilcox's first answer in the cited transcript reads as follows:

A. Well, it turns out that when you burn coal, you have something called loss on ignition. And what that means is the carbon in the coal is not completely oxidized and every coal-fired utility will have some small amount. Now, the less they have, the more efficient their process is. But what that means is -- and you don't always have complete combustion. And so it's very difficult to say take a pen and draw where that combustion zone ends. What's going to happen is you do have a gradient in temperature. There's this continuity in temperature, right; you pass through every temperature between the combustion zone being high and then the upper furnace being much lower. And so can I say that there's not a particle of carbon that's unburned that doesn't interact with oxygen at a slightly lower temperature than the combustion zone and that there's not some kind of additional combustion happening, it's very difficult to say no to that.

D.I. # 74, Wilcox Dep. 123:4–124:3.

992.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

993.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

994.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

995.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

996. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

997. [REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

998. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

999. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1000. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1001. In Case No. 1:14-cv-02510, *Nalco Company v. Chem-Mod, LLC, et. al.*, in the Northern District of Illinois, Document 114, Defendants’ Memorandum in Support of their Motion to Dismiss the Fourth Amended Complaint is attached hereto for the Court’s convenience. Klingman Decl. ¶ 25 (Exhibit 95).

Response: Undisputed that the identified legal memorandum is attached to the Klingman Declaration of May 14, 2019.

1002. In Case No. 1:14-cv-02510, *Nalco Company v. Chem-Mod, LLC et. al.*, in the Northern District of Illinois, Document 116, Plaintiff’s Response to Defendants’ Motion to Dismiss Nalco’s Fourth Amended Complaint is attached hereto for the Court’s convenience. Klingman Decl. ¶ 26 (Exhibit 96).

Response: Undisputed that the identified legal memorandum is attached to the Klingman Declaration of May 14, 2019.

1003. In Case No. 1:14-cv-0215; *Nalco Company v. Chem-Mod, LLC, et. al.*, in the Northern District of Illinois, Document 117, Defendants’ Reply Memorandum in Further Support of Their Motion to Dismiss the Fourth Amended Complaint is attached hereto for the Court’s convenience. Klingman Decl. ¶ 25 (Exhibit 97).

Response: Undisputed that the identified legal memorandum is attached to the Klingman Declaration of May 14, 2019.

1004. Dr. Fry express his opinion that a person of ordinary skill in the art for the purposes of the ’692 Patent would be “a person who has at least a Bachelor’s degree in chemical or mechanical engineering, chemistry, or a similar degree, as well as having at least a few years’ experience developing or studying technologies for reducing emissions in coal-fired power plants or a few years’ experience working with or managing the combustion process of a coal- fired power plant.” Dkt. 78, Opening Expert Report of Andrew Fry, Ph.D. Regarding Infringement ¶ 134.

Response: Undisputed.

1005. Dr. Fry opined that he “would reach the same conclusions regarding . . . claim construction if [he] applied [his] definition of a POSA, Dr. Wilcox’s definition of a POSA, or someone in between.” Dkt. 80, Reply Expert Report of Andrew Fry, Ph.D. Regarding Infringement, ¶ 12.

Response: Undisputed.

1006. Dr. Wilcox opined that the claim construction she proposed would be the same “whether the POSA is found to have the level of education and skill that I believe is warranted, or that suggested by Dr. Fry, or someone in between.” Dkt. 82, Second Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 12.

Response: Undisputed.

1004-1099. [Intentionally omitted].

1100. The Julien reference, S. Julien et al., *The Effect of Halides on Emissions From Circulating Fluidized Bed Combustion of Fossil Fuels*, 75 FUEL 1655 (1996) (“Julien”), discloses testing done in an experimental pilot scale circulating fluidized bed combustion system at the University of British Columbia. Dkt. 95-173, S. Julien et al., *The Effect of Halides on Emissions From Circulating Fluidized Bed Combustion of Fossil Fuels*, 75 FUEL 1655 (1996) (DEFS-0000226-234) at DEFS-0000226.

Response: Undisputed.

1101. The experimental combustion system described in Julien burned coal, but was significantly different than the much larger and differently structured wall-fired boilers in the commercial power plants accused of infringement in this case. Dkt. 79, Rebuttal Expert Report of Dr. Andrew Fry, Ph.D. Regarding Validity, ¶¶ 197- 200, 203, 205.

Objection: Pl. Supp. PFF ¶ 1101 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Sec. I.B.6, because it is argumentative and improper for a proposed fact. Additionally, Pl. Supp. PFF ¶ 1101 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph, and Sec. I.B.6, because it is argumentative and improper for a proposed fact.

Response: Disputed as contrary to the record. The power plants accused in

this case use tangential fired boilers, not wall-fired. D.I. # 113, Def. PFF ¶¶ 846, 855 (D.I. # 89-1, Lawton Report ¶ 195; D.I. # 78, First Fry Report ¶ 168; D.I. # 96, Hujet Dep. 43:21–23; D.I. # 66, Lokenvitz Dep. 22:11–17, 111:17–112:11, 149:20–150:6).

1102. Julien does not mention mercury or experiments involving mercury removal. Dkt. 95-173, S. Julien et al., *The Effect of Halides on Emissions From Circulating Fluidized Bed Combustion of Fossil Fuels*, 75 FUEL 1655 (1996) (DEFS-0000226-234); Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶¶ 191, 203.

Response: Disputed as unsupported. Julien may not mention mercury specifically, but it discusses an experiment—combusting coal with calcium in the combustion chamber and ahead of a baghouse— involving flue gas, which inherently always contains mercury. D.I. # 113, Def. PFF ¶¶ 280, 436–438 (D.I. # 81, First Wilcox Report ¶ 37; D.I. # 77, First Fry Report ¶¶ 61, 68; D.I. # 95, Mark Decl. Ex. 186, Julien, Tables 4–5, at DEFS-0000228–230).

1103. Julien describes the results of a study to determine whether and to what extent halogen addition would affect CO, SO_x and NO_x emissions from coal combustion flue gas in the environment of a circulating fluidized bed combustor. Dkt. 95-173, S. Julien et al., *The Effect of Halides on Emissions From Circulating Fluidized Bed Combustion of Fossil Fuels*, 75 FUEL 1655 (1996) (DEFS-0000226-234); Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶¶ 191.

Response: Undisputed.

1104. Julien describes experiments involving injection of hydrogen chloride and calcium bromide into a pilot-scale circulating fluidized bed combustion system. Dkt. 95-173, S. Julien et al., *The Effect of Halides on Emissions From Circulating Fluidized Bed Combustion of Fossil Fuels*, 75 FUEL 1655 (1996) (DEFS-0000226-234); Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶¶ 191.

Response: Undisputed.

1105. Julien states: “Free energy calculations suggest that complete decomposition of CaBr₂ to HBr and CaO in the presence of water vapour is favored over the full range of temperatures in the CFBC.” Dkt. 95-173, S. Julien et al., *The Effect of Halides on Emissions*

From Circulating Fluidized Bed Combustion of Fossil Fuels, 75 FUEL 1655 (1996) (DEFS-0000226-234) at DEFS-000029.

Response: Undisputed that Julien contains the quoted statement, but that does not make the statement admissible for all purposes.

1106. Julien reported that calculations suggest that all of the calcium bromide injected in their experiment decomposed to HBr and CaO. Dkt. 95-173, S. Julien et al., *The Effect of Halides on Emissions From Circulating Fluidized Bed Combustion of Fossil Fuels*, 75 FUEL 1655 (1996) (DEFS-0000226-234) at DEFS-000029; Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶¶ 192, 196.

Response: Disputed as contrary to the evidence. Rather, during the reexamination, Hazelmere stated that “a POSITA would know the temperature range from about 649 °C to about 1232 °C and that at such temperatures both magnesium bromide and calcium bromide will decompose to form HBr which in turn will form Br₂ which in turn will oxidize elemental mercury to HgBr₂.”

D.I. # 113, Def. PFF ¶ 247 (D.I # 38-9, Respondent Hazelmere’s Brief (Dec. 20, 2012), at 407).

1107. Julien does not mention molecular bromine formation. Dkt. 95-173, S. Julien et al., *The Effect of Halides on Emissions From Circulating Fluidized Bed Combustion of Fossil Fuels*, 75 FUEL 1655 (1996) (DEFS-0000226-234); Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 192.

Response: Undisputed.

1108. Julien does not mention mercury. Dkt. 95-173, S. Julien et al., *The Effect of Halides on Emissions From Circulating Fluidized Bed Combustion of Fossil Fuels*, 75 FUEL 1655 (1996) (DEFS-0000226-234); Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 191.

Response: Undisputed.

1109. Julien does not mention any adsorption of any mercuric bromide onto provided solid alkaline particles. Dkt. 95-173, S. Julien et al., *The Effect of Halides on Emissions From Circulating Fluidized Bed Combustion of Fossil Fuels*, 75 FUEL 1655 (1996) (DEFS-0000226- 234).

Response: Undisputed.

1110. During her deposition on March 29, 2019, Dr. Wilcox stated the following:

Q. And the Julien facility, the facility that Julien was using was an experimental reactor, correct, not a commercial power plant?

A. Not a commercial power plant, no.

Dkt. 74, Deposition of Jennifer Wilcox, Ph.D., March 29, 2019, pg. 220:8-11.

Response: Undisputed that Wilcox testified as quoted above.

1111. During her deposition on March 29, 2019, Dr. Wilcox stated the following:

Q. Now, what temperature was the combustion zone in the Julien facility?

A. That had a range, I believe it was between 800 – let's see, maybe in the abstract it will say. Yes, here we go. There's a range. So the lowest is just over 800 degrees C, and the highest is about 850. So what I did is I took that same range and I looked – I benchmarked it with Niksa, and in Niksa that's his time scale of a half a second. And when you carry that over, you actually are well on your way to forming bromine radicals in addition to Br₂, in addition to HBr. So you have an overlapping of those three species at that temperature.

Q. Now, I believe you said that commercial coal-fired plants, and correct me if I'm wrong, I believe you said earlier today that they operate in the combustion zone temperature of about 1400?

A. Yeah, that's correct.

Q. So significantly hotter than Julien, correct?

A. Yeah. The reason why, though, is because Julien is interested in studying NO_x reduction. And so he's looking at the low oxygen, low temperature region. And so it's after the coal has been somewhat oxidized.

Q. Well, isn't it also because it's circulized – get the name wrong. Because a CFBC operates at a lower temperature than a commercial power plant generally?

A. That's why he chose that reactor.

Q. It's true that they operate at a lower temperature generally, correct?

A. Right, but that was why he wanted it, is because he wanted to study that temperature range in particular.

Q. And isn't it also true that in the facility like the one Julien was using, you have a much greater percent of unburned carbon in the ash than you would in a commercial power plant?

A. The reason why there's more unburned carbon is because he chose the temperature – he chose low oxygen concentrations because he wanted to look at the effect of the NO_x and SO_x reduction and suppression. And so

he purposely chose low oxidizing scenarios, which is why his experiments result in a larger loss on ignition than what you would see. But if you were to apply this to a full scale power plant, you wouldn't have those same numbers.

Dkt. 74, Deposition of Jennifer Wilcox, Ph.D., March 29, 2019, pg. 228:18-230:19.

Response: Undisputed that Wilcox testified as quoted above.

1112. Dr. Fry's Rebuttal Expert Report states:

Various possibilities exist as to what happened to the CaBr₂ used in the experiment described by Julien. For example, it is possible that the HBr was adsorbed onto carbon from unburned coal, CaO or other alkaline solids. A circulating fluidized bed combustor would be expected to have a substantial amount of unburned carbon in the system. *See, e.g.,* Rafal Kobylecki, *Unburned carbon in the circulating fluidized bed boiler fly ash*, Chem, Process Eng., 2011, 32(4), 255-266. I would expect a CFB combustor to have significantly more unburned carbon than a suspension fired pulverized coal combustor, for example. Mr. Comrie, the inventor of the accused process, confirmed that excess carbon can result in the capture of all the mercury in the system without using any bromine. Comrie Depo. Tr. 234:16-235:16.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 197.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1113. Dr. Fry's Rebuttal Expert Report states:

In addition, circulating fluidized bed combustors have a different temperature profile than a utility boiler. For example, the reactor temperatures disclosed in Julien range from 844 to 859°C. *See* Julien, Tables 3-5. Lower temperatures such as these would be more likely to support adsorption of HBr onto unburned carbon or alkaline solids. Bromine species such as HBr can be absorbed by unburned carbon, thereby preventing generation of molecular bromine.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 198.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1114. Dr. Fry's Rebuttal Expert Report states:

Julien discloses use of a small, "pilot scale" reactor, which would have a high

surface to volume ratio compared to a commercial scale combustor. It is possible that bromine species could have been used up in reacting or adsorbing with the equipment surface, and never converted to molecular bromide.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 199.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1115. Dr. Fry's Rebuttal Expert Report states:

Numerous factors can affect whether Br₂ is generated from HBr or from CaBr₂, including the temperature profile of the system, residence time, ash composition and unburned carbon in ash, coal type, other flue gas constituents, pressure, water vapor, composition of the system walls, size and orientation of various aspects of the combustion facility, etc. (*see, e.g.,* Comrie Depo. Tr. at 223:12-229:15; 233:17-234:10), where many of these parameters would be different in the pilot scale CFBC furnace used by Julien, compared to the commercial scale coal-fired power plants relevant to the disclosure in the '692 Patent. *See, e.g.,* '692 Patent, 3:66- 4:3; 7:25-9:63.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 200.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1116. Dr. Fry's Rebuttal Expert Report states:

Similar to the question of whether molecular bromine was formed, numerous factors can affect whether Hg⁰ is oxidized by Br₂ (assuming any Br₂ was present) to form HgBr₂, including the temperature profile of the system, residence time, ash composition and unburned carbon in ash, coal type, other flue gas constituents, pressure, presence of acid gases, water vapor, composition of the system walls, size and orientation of various aspects of the combustion facility, etc., all of which parameters differ in the pilot-scale CFBC disclosed by Julien compared to the commercial coal-fired power plants disclosed by the '692 Patent.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 205.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1117. In her First Expert Report, Dr. Wilcox stated:

In my opinion, Julien discloses these limitations. Julien discloses that ‘bromide was injected as a solution of 10 wt% calcium bromide.’ Julien at 1658. The injection rates for the CaBr₂ are reported in Table 3. The CaBr₂ is added into a circulating fluidized bed combustor, where the temperature is in the range of approximately 820-850°C. According to the plaintiffs’ proposed understanding of the claim terms in this case, specifically ‘thermolabile molecular bromine precursor,’ CaBr₂ is a thermolabile molecular bromine precursor.

Dkt. 81, First Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 142.

Response: Undisputed that the First Wilcox Report contains the quoted statement.

1118. In his response to Dr. Wilcox’ First Report, Plaintiffs’ expert, Dr. Fry, pointed out that whether calcium bromide will necessarily and inevitably form molecular bromine, which will then oxidize mercury, and then the resulting oxidized mercury will adsorb onto provided solid alkaline particles, depends on the conditions in the system. Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶¶ 192-208.

Objection: Pl. Supp. PFF ¶ 1118 violates the Court’s Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported. The Second Fry Report states that whether calcium bromide will form molecular bromine depends on “[n]umerous factors . . . including the temperature profile of the system, residence time, ash composition and unburned carbon in ash, coal type, other flue gas constituents, pressure, water vapor, composition of the system walls, size and orientation of various aspects of the combustion facility, etc” D.I. # 79, Second Fry Report ¶ 200.

1119. In her Third Expert Report, Dr. Wilcox stated:

To the contrary, the scientific evidence—such as the Niksa studies, and the Paulik reference cited by the Patent Owner during the reexaminations—shows

that these factors could affect the distribution of various species that may be formed from the decomposition of CaBr_2 , such as HBr , Br_2 , BrO , and Br , but that inevitably some Br_2 would be formed from the decomposition of the calcium bromide.

Dkt. 83, Third Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 21.

Response: Undisputed that the Third Wilcox Report contains the quoted statement.

1120. Dr. Fry's Rebuttal Expert Report states:

The salient question is how one of ordinary skill in the art would understand the specification, inclusive of the original claims. It is clear to me that at that time, a POSA would have understood that additives to affect flue gas could be introduced by adding the additives to the coal before combustion and injected with the coal, could be injected into the flue gas in the combustion zone separately from the coal, or into the flue gas downstream, and that there might be preferred injection points that could differ depending upon the additive. When Dr. Wilcox at ¶ 107 says the '692 specification is limited to "exactly what it says" when it refers to "injecting into flue gas," she is, in short, incorporating what is in my opinion an incorrect and unsupported narrow definition of "flue gas" that is erroneous for the same reasons I discuss in the claim construction section.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 161.

Objection: Pl. Supp. PFF ¶ 1120 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.6, because it is argumentative and improper for a proposed fact.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1121. Dr. Fry stated in his Rebuttal Expert Report: "In my opinion, Julien does not include enough information from which to conclude that the thermal decomposition of CaBr_2 necessarily resulted in the generation of molecular bromine, and there are a large number of operating conditions under which Julien's described system could have operated such that any

formation of molecular bromine was not inevitable.” Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 193.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1122. During his deposition on February 26, 2019, Mr. Comrie stated the following:

Q. And just the first three sentences reads, the test conducted on July 8th, 2014 consisted of two baselines and two different blended coals. During baseline test -- baseline line testing it was observed that mercury was unmeasurable due to incomplete combustion, and therefore carbon laden ash was coating the surface [sic] and ducting walls. This carbon was absorbing the native mercury in the flue gas and limiting our ability to achieve baseline results. Do you see that?

Q. And I understand you weren't involved in this test. But as you read this, do you have an understanding of the issue they're discussing there?

A. It's the phenomena of disintegration products of the fuel that if not sufficiently combusted will -- you'll get excess carbon, unburned carbon, and that excess unburned carbon has the ability to mix with Hg.

Dkt. 63, Deposition of Douglas Comrie, April 4, 2019, pg. 234:16-235-16. (counsel objections omitted).

Response: Undisputed that Comrie answered as quoted above. That Comrie so answered does not make the testimony admissible for all purposes, however. To clarify, the transcript reads as follows including objections from defendants' attorney.

Q. And just the first three sentences reads, the test conducted on July 8th, 2014 consisted of two baselines and two different blended coals. During baseline test -- baseline line testing it was observed that mercury was unmeasurable due to incomplete combustion, and therefore carbon laden ash was coating the surface [sic] and ducting walls. This carbon was absorbing the native mercury in the flue gas and limiting our ability to achieve baseline results. Do you see that?

MR. EVALL: I'm going to object. That's not what the document says.

Q. To the extent I missed a word, the document will obviously speak for itself.

A. I see that.

Q. And I understand you weren't involved in this test. But as you read

this, do you have an understanding of the issue they're discussing there?

MR. EVALL: Objection; lack of foundation, calls for speculation.

A. It's the phenomena of disintegration products of the fuel that if not sufficiently combusted will -- you'll get excess carbon, unburned carbon, and that excess unburned carbon has the ability to mix with Hg.

1123. Tables 4 and 5 in Julien disclose that the temperatures in the reactor in which the experiments using calcium bromide were conducted were measured to range from 835-869°C. Dkt. 95-173, S. Julien et al., *The Effect of Halides on Emissions From Circulating Fluidized Bed Combustion of Fossil Fuels*, 75 FUEL 1655 (1996) (DEFS-0000226-234) at DEFS-0000230.

Response: Undisputed that Tables 4 and 5 disclose the temperature range disclosed above.

1124. During his deposition on April 4, 2019, Dr. Fry stated the following:

Q. Okay. Thank you.

A. Then a mistake – let me find it. This is in my rebuttal report, my second report, paragraph 198. The temperatures cited here are not correct. They should be 835 to 869.

Q. That's in the third line?

A. That's in the third line.

Q. And you said 835 to 869 degrees centigrade?

A. That's correct.

Dkt. 77, Deposition of Andrew Fry, Ph.D., April 4, 2019, pg. 66:7-16.

Response: Undisputed that Fry answered as quoted above.

1125. Dr. Fry's Rebuttal Expert Report States:

In my opinion, Dr. Wilcox has not met her burden of demonstrating that molecular bromine was necessarily formed in the system described in Julien. However, even if one were to assume that molecular bromine was generated, without further information, it is also not possible to conclude whether any such molecular bromine played a role in oxidation of mercury to mercuric bromide. For example, if Br₂ were generated in Julien from the thermal decomposition of the CaBr₂, of which, as noted, there is no evidence, such possible Br₂ could have been used up reacting with or adsorbing on the walls of the experimental reactor used in Julien. Julien discloses use of a small, "pilot scale" reactor, which would have a high surface to volume ratio compared to a commercial scale combustor. It is possible that Br₂ (if any were formed) could have been used up reacting with or adsorbing on the equipment surface. Again, Julien makes no mention of mercury or mercury

removal at all, and I understand the test for whether oxidation of mercury to form mercuric bromide is effected by molecular bromine derived from a thermolabile bromine precursor to be something that must necessarily and inevitably occur from the system disclosed by Julien in order for it to anticipate. That certainly is not the case here.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 203.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1126. Dr. Fry's Rebuttal Expert Report States:

It is also impossible to conclude that there was in fact elemental mercury available in the flue gas to react with molecular bromine even if there were in fact molecular bromine formed, because in a system the size of the one in Julien, the mercury could have been adsorbed to the equipment walls instead of reacting with any molecular bromine that might have been present. Studies on CaBr_2 injection in commercial power plants, such as those described by Niksa, do not suggest to me that the same chemistry necessarily occurred in the experiments described by Julien. *See, e.g.,* Kilgroe at 5-25 ("reduced scale systems provide insight into many issues, but cannot fully account for the impacts that additional control technologies have on plant-wide equipment. Therefore it is necessary to scale up and perform full-scale tests to document actual performance in a full-scale boiler."). Similar to the question of whether molecular bromine was formed, numerous factors can affect whether Hg^0 is oxidized by Br_2 (assuming any Br_2 was present) to form HgBr_2 , including the temperature profile of the system, residence time, ash composition and unburned carbon in ash, coal type, other flue gas constituents, pressure, presence of acid gases, water vapor, composition of the system walls, size and orientation of various aspects of the combustion facility, etc., all of which parameters differ in the pilot-scale CFBC disclosed by Julien compared to the commercial coal-fired power plants disclosed by the '692 Patent.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 205.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1127. The Kilgroe reference—James D. Kilgroe et al., *Control of Mercury Emissions from Coal-Fired Electric Utility Boilers: Interim Reports*, U.S. ENVIRONMENTAL PROTECTION AGENCY & OFFICE OF RESEARCH AND DEVELOPMENT, EPA/600/R-01/109 (2001) ("Kilgroe")—states: "Most of work to date in Hg control has been done in bench- or pilot-scale systems. These reduced-scale systems provide insight into many issues,

but cannot fully account for the impacts that additional control technologies have on plant-wide equipment. Therefore, it is necessary to scale up and perform full-scale tests to document actual performance in a full-scale boiler.” Dkt. 95-143, James D. Kilgroe et al., *Control of Mercury Emissions from Coal-Fired Electric Utility Boilers: Interim Reports*, U.S. ENVIRONMENTAL PROTECTION AGENCY & OFFICE OF RESEARCH AND DEVELOPMENT, EPA/600/R-01/109 (2001)(“Kilgroe”)(DEFS-0000235-719) at DEFS-0000386.

Response: Undisputed that the Kilgroe contains the quoted statement, but that does not make the statement admissible for all purposes.

1128. Dr. Fry’s Rebuttal Expert Report States:

As a further example, even if one assumed there was mercury in Julien’s flue gas, and there was molecular bromine necessarily and inevitably formed from injection of a thermolabile molecular bromine precursor, it is possible and even likely that mercury was taken up by halogens on the unburned carbon in the fly ash, with no involvement of molecular bromine in the oxidation to mercuric bromide. *See, e.g.*, Wilcox First Report, ¶¶ 54-55. If the bromine species were taken up by the unburned carbon, for example, it is probable that mercury oxidation would take place at the surface of the unburned carbon particles by way of bromine species on the carbon, but in my opinion this would not meet the claim element, because it would not involve molecular bromine.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 204.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1129. In her First Expert Report, Dr. Wilcox stated: “Like activated carbon, fly ash not only removes Hg by adsorption, but also has the potential to promote Hg oxidation. *See* Ravi Bhardwaj et al., *Impact of Fly Ash Composition on Mercury Speciation in Stimulated Flue Gas* 59 J. OF THE AIR & WASTE MGMT. ASS’N 1331-38 (2009). Unburned carbon in fly ash plays an important role in Hg capture as a catalytic surface.” Dkt. 81, First Expert Report of Jennifer L. Wilcox, Ph.D., ¶ 55.

Response: Undisputed that the First Wilcox Report contains the quoted statement.

1130. Dr. Fry’s Rebuttal Expert Report States:

Julien does not disclose the claim element “providing alkaline solid particles in said flue gas ... in order to adsorb at least a portion of said mercuric bromide” as that phrase is used in claim 1 of the ’692 Patent or

the claim element “providing solid alkaline particles in said flue gas ... whereby at least a portion of the mercuric bromide produced at Step (a) is adsorbed by the solid alkaline particles” as that phrase is used in claim 19 of '692 Patent. Julien does not disclose these claim elements at least for the reason that Julien does not disclose the oxidation of elemental mercury to mercuric bromide, as explained above. Furthermore, even if mercuric bromide were formed as a result of oxidation of elemental mercury, such mercuric bromide could have been adsorbed on activated carbon and not by alkaline solid particles provided in the flue gas.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 208.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1131.

[REDACTED]

[REDACTED]

[REDACTED]

1132.

[REDACTED]

[REDACTED]

1133. [REDACTED]

[REDACTED]

1134. [REDACTED]

[REDACTED]

1135. On April 3, 2019, Plaintiffs filed a motion for leave to designate Dr. Stephen Niksa as a rebuttal expert and to serve his rebuttal expert report. Dr. Niksa's Rebuttal Expert Report was attached as Exhibit 1 to the motion for leave. Dkt. 75, Plaintiffs' Motion for Leave to Designate Dr. Stephen Niksa as a Rebuttal Expert and to Serve His Rebuttal Expert Report.

Objection: Pl. Supp. PFF ¶ 1135 violates the Court's Standing Order on

Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph. Additionally, as discussed in Defendants' Opposition to Plaintiffs' Motion for Leave to Designate Niksa as a Rebuttal Expert, D.I. # 92, Niksa was not timely disclosed as an expert in this case and his proffered report may therefore not be considered.

Response: Undisputed that Plaintiffs filed the motion described in Pl. Supp. PFF ¶ 1135. Niksa was not a properly disclosed expert and any opinions of Niksa should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c). *See* D.I. # 92, Defendants' Opposition to Plaintiffs' Motion for Leave to Designate Niksa as a Rebuttal Expert.

1136. In this report, Dr. Niksa sets forth certain facts regarding his article as well as the underlying work, and expresses his opinions that his work does not support Dr. Wilcox's conclusion that molecular bromine formed in the system described in Julien. Dkt. 75, Plaintiffs' Motion for Leave to Designate Dr. Stephen Niksa as a Rebuttal Expert and to Serve His Rebuttal Expert Report; Dkt. 75-1, Rebuttal Expert Report of Dr. Stephen Niksa.

Objection: Pl. Supp. PFF ¶ 1136 violates the Court's Standing Order on Motions for Summary Judgment, Sec. I.B.3, because it asserts multiple factual propositions within the same numbered paragraph.

Response: Disputed as unsupported by admissible evidence. Pl. Supp. PFF ¶ 1136 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Niksa was not a properly disclosed expert and any opinions of Niksa should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c). *See* D.I. # 92, Defendants' Opposition to Plaintiffs' Motion for Leave to Designate Niksa as a Rebuttal Expert.

1137. In his Rebuttal Expert Report, Dr. Niksa stated:

With respect to whether molecular bromine was formed in the system described by Julien after the flue gas exited the furnace, Julien simply does not provide enough information from which one can know the answer. Niksa shows the significance of time-temperature profile on the formation of different Br-species, including molecular bromine. Niksa shows that if the residence time is too short, then there may be *no* formation of molecular bromine. In my opinion, in a pilot scale CFBC such as that described in Julien, the time-temperature profile of the system would be very different from that of the plants studied in my paper, and would be such that the residence times in Julien would be much shorter than the residence times studied in my paper. In such a case, it is highly likely, and certainly at least possible, that the residence times in Julien were sufficiently short that no formation of molecular bromine would have occurred.

Dkt. 75-1, Rebuttal Expert Report of Dr. Stephen Niksa, ¶ 19.

Response: Disputed as unsupported by admissible evidence. Pl. Supp. PFF

¶ 1137 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Niksa was not a properly disclosed expert and any opinions of Niksa should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c). *See* D.I. # 92, Defendants' Opposition to Plaintiffs' Motion for Leave to Designate Niksa as a Rebuttal Expert.

1138. In his Rebuttal Expert Report, Dr. Niksa stated:

The specific calculation results in my work clearly show that contact times of a few seconds are required to oxidize any Hg^0 into HgBr_2 in the presence of Br_2 and other Br-species, provided that the conditions are similar to those in commercial gas cleaning systems in coal-fired power plants. The important implication is that systems that do not provide sufficient contact time, or that impose different temperature profiles, will not necessarily or inevitably sustain any oxidation of Hg^0 into HgBr_2 , even if the proportions of coal, air, and CaBr_2 are the same as those in my work. For example, my work teaches that any system that provides less than two seconds of contact time, while all other conditions are the same as in my work (i.e., in the three commercial coal fired utility plants that

formed the basis of my study), would not oxidize any Hg^0 into HgBr_2 .

Dkt. 75-1, Rebuttal Expert Report of Dr. Stephen Niksa, ¶ 22.

Response: Disputed as unsupported by admissible evidence. Pl. Supp. PFF ¶ 1138 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Niksa was not a properly disclosed expert and any opinions of Niksa should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c). *See* D.I. # 92, Defendants' Opposition to Plaintiffs' Motion for Leave to Designate Niksa as a Rebuttal Expert.

1139. In his Rebuttal Expert Report, Dr. Niksa stated:

My work teaches that Hg^0 is oxidized by Br_2 (and other Br-species) along commercial gas cleaning systems, from the economizer into the particle collection device. But Julien teaches nothing about the chemistry of Br species or any other species along their system downstream of the coal-fired furnace (because their work was directed at radical scavenging by Br within the coal-fired furnace). Moreover, Julien does not provide the specifications that one needs in order to make any form of estimates of the operating conditions from their coal-fired furnace to the exhaust. Contact times cannot be estimated because Julien does not report tube sizes and flowrates, and temperatures are only reported for the coal-fired furnace, per se.

Dkt. 75-1, Rebuttal Expert Report of Dr. Stephen Niksa, ¶ 23.

Response: Disputed as unsupported by admissible evidence. Pl. Supp. PFF ¶ 1139 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Niksa was not a properly disclosed expert and any opinions of Niksa should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c). *See* D.I. # 92, Defendants' Opposition to Plaintiffs' Motion for Leave to Designate Niksa as a Rebuttal Expert.

1140. In his Rebuttal Expert Report, Dr. Niksa stated:

The operation of CFBCs requires high gas velocities, which inherently result in low gas residence times. In addition, if, for example, the tubing that connected the coal-fired furnace to the exhaust was small enough to provide less than two seconds of contact time between Hg^0 and Br_2 , then my work teaches that no Hg^0 was oxidized by Br_2 into HgBr_2 in the tests of Julien. In my opinion, in a pilot scale CFBC such as that described in Julien, the time-temperature profile of the system would be very different from that of the commercial plants studied in my paper, and would be such that the residence times in Julien would be much shorter than the residence times studied in my paper. In such a case, it is highly likely, and certainly at least possible, that the residence times in Julien were sufficiently short that even if any molecular bromine were formed, it would not effect the oxidation of any mercury.

Dkt. 75-1, Rebuttal Expert Report of Dr. Stephen Niksa, ¶ 24.

Response: Disputed as unsupported by admissible evidence. Pl. Supp. PFF

¶ 1140 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Niksa was not a properly disclosed expert and any opinions of Niksa should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c). *See* D.I. # 92, Defendants' Opposition to Plaintiffs' Motion for Leave to Designate Niksa as a Rebuttal Expert.

1141.

[REDACTED]

1142.

[REDACTED]

[REDACTED]

1143.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1144.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1145. During his deposition on April 4, 2019, Dr. Fry stated the following:

Q. ... The factors listed on the sixth line of paragraph 200 of your report, of your second report –

A. Yes,

Q. –did you consider those factors in forming your opinions in this case?

A. Yes.

Q. You referred to residence time. What was the residence time in the Weston and Columbia boilers?

A. The residence time that a designer would use is on the order of a second to exit the furnace and orders of seconds to make it through the convective pass, and additional seconds to make it through air pollution control devices.

Q. When you say seconds to exit the furnace, that's from the time that it's introduced into the combustion zone?

A. Correct.

Q. Okay. And what data from Columbia and Weston plants did you rely on to form those opinions?

A. I don't need data because I knew the design criteria, and the design criteria relates to temperature of particles as they arrived at the secondary heat pence. And I know that those are on the order of a second to arrive at the correct temperatures. And that's close enough.

It doesn't have to be fractions of the second known. It – temperature profiles of power plants are very similar. It doesn't matter if it's wall-fired, if it's T-fired. Their temperature profile is very similar. And Niksa showed that. When he modeled three different units with one temperature profile and reproduced the data that was measured for the oxidation of mercury based on calcium bromide injection, they fit very well.

Dkt. 77, Deposition of Andrew Fry, Ph.D., April 4, 2019, pg. 146:6-12; 147:8-148:13.

Response: Undisputed that Fry answered as quoted above.

1146. During her deposition on March 29, 2019, Dr. Wilcox stated the following:

Q. Now, as you sit here yourself with your knowledge and experience, is it your opinion that the injection of MerSorb in the context of the pulverized coal that you described leads to the formation of molecular bromine in the Columbia plant?

A. Molecular bromine is likely to form, among other things.

Q. And the molecular bromine that you're saying is likely to form, does it, in your opinion, affect oxidation of mercury in the Columbia plant?

A. Yes. Bromine -- molecular bromine is an oxidizing agent for mercury.

Q. And will it in the Columbia plant oxidize mercury?

A. So if you look at, in that plant in particular, but not just in that plant, again, if you are -- like if we think about the scenario that we've already discussed and you have MerSorb and you pre-treated the coal and you've pulverized it and you've injected it into the furnace, you get a variety of compounds, Br₂ being one of them, and Br₂ is an oxidizer of mercury.

Dkt. 74, Deposition of Jennifer Wilcox, Ph.D., March 29, 2019, pg. 167:6-168:8. (counsel objections omitted).

Response: Undisputed that Wilcox answered as quoted above. To clarify, the transcript reads as follows, with objections from Defendants' attorney.

Q Now, as you sit here yourself with your knowledge and experience, is it your opinion that the injection of MerSorb in the context of the pulverized coal that you described leads to the formation of molecular bromine in the Columbia plant?

MR. EVALL: Objection, incomplete hypothetical, objection to form.

A Molecular bromine is likely to form, among other things.

Q And the molecular bromine that you're saying is likely to form, does it, in your opinion, affect oxidation of mercury in the Columbia plant?

A Yes. Bromine -- molecular bromine is an oxidizing agent for mercury.

Q And will it in the Columbia plant oxidize mercury?

MR. EVALL: Objection to form, incomplete hypothetical.

A So if you look at, in that plant in particular, but not just in that plant, again, if you are -- like if we think about the scenario that we've already discussed and you have MerSorb and you pre-treated the coal and you've pulverized it and you've injected it into the furnace, you get a variety of compounds, Br₂ being one of them, and Br₂ is an oxidizer of mercury.

1147. During his deposition on March 26, 2019, Dr. Abbott stated the following:

Q. Yes, first page of the presentation, which is 50364, Arbor 50364, and for the record, it's Exhibit 1 after a first page, which is Arbor 50363, includes a PowerPoint that goes from 50364 through 50381. Doctor, just take a minute just to look through a few pages of this. My first question, generally, is: Do you recall having seen this before?

A. Yes.

Q. Okay. And did you ever present this PowerPoint?

A. I believe I did.

Q. Do you recall, was it at this particular symposium that's mentioned here?

A. Yes.

Q. Okay. The MEGA symposium?

A. Yes.

Q. Is MEGA an acronym for something?

A. It is, but I don't recall what it is.

Q. All right. And I wanted you to turn to 68, so Arbor 50368. Just take a second to look at that page. Do you see there at the top, it says bromine addition for mercury control?

A. Yes.

Q. First bullet says coal pretreatment with CaBr₂ solution is effective for all coal types.

Do you see that?

A. Yes.

Q. All right. And the next bullet says Br forms HBr gas at combustion temperatures. Do you see that?

A. Yes.

Q. And was that your understanding at the time you made this presentation?

A. I mean, bromine can -- well, bromine can go multiple pathways is all I can say, but that is one of the options, yes.

Q. So at the time you made this presentation and you had the bullet bromine forms HBr gas at combustion temperatures, did you remember telling the audience that this isn't accurate? You just put it up there instead anyway?

A. I mean, I didn't -- I don't know that this bullet is intended to say that all bromine goes to HBr. Some bromine goes to HBr. Some bromine

goes to other forms, including Br₂.

Q. Okay. So the next bullet says HBr undergoes Deacon reaction to form Br₂. Do you see that?

A. Mm-hmm.

Q. And then there's a chemical equation below there.

A. Yes.

Q. Is that the Deacon reaction? Is that representative of the Deacon reaction?

A. Yes. I mean, the Deacon reaction can include any halide.

Q. But it includes, in this instance in your presentation, HBr?

A. Yes.

Dkt. 61, Deposition of Murray Abbott, Ph.D., March 26, 2019, pg. 52:15-55-3.

Objection: Pl. Supp. PFF ¶ 1147 misstates the transcript to the extent that objections made during the depositions have been omitted.

Response: Undisputed that Abbott answered as quoted above. That Abbott so answered does not make the testimony admissible for all purposes, however. To clarify, the original testimony contains objections from Defendants' attorney.

1148. During his deposition on March 26, 2019, Dr. Abbott stated the following:

Q. Okay. Did you review this presentation before you presented it?

A. Yes.

Q. Did you believe it to be accurate at the time?

A. Yes.

Q. And do you believe it to be accurate now?

A. I believe it's accurate. It's just there's more behind it than --

Q. Now, the next bullet says Br₂ reacts with mercury to yield HgBr₂. Do you see that?

A. Yes.

Q. Was that your understanding at the time of part of what was going on in the Chem-Mod Solution?

A. Well, I mean, that's what's going on in a furnace, yes.

Q. In a commercial power plant?

A. Yes.

Q. Okay. So it was your understanding that the calcium bromide that's introduced as part of the Chem-Mod Solution, some of it ends up as Br₂

in the plant?

A. Yes.

Dkt. 61, Deposition of Murray Abbott, Ph.D., March 26, 2019, pg. 55:12-56:11. (counsel objections omitted).

Response: Undisputed that Abbott answered as quoted above. That Abbott so answered does not make the testimony admissible for all purposes, however. To clarify, the transcript reads as follows, with objections from Defendants' attorney.

Q. Okay. Did you review this presentation before you presented it?

A. Yes.

Q. Did you believe it to be accurate at the time?

A. Yes.

Q. And do you believe it to be accurate now?

A. I believe it's accurate. It's just there's more behind it than --

Q. Now, the next bullet says Br₂ reacts with mercury to yield HgBr₂. Do you see that?

A. Yes.

Q. Was that your understanding at the time of part of what was going on in the Chem-Mod Solution?

MR. EVALL: Objection to form.

A. Well, I mean, that's what's going on in a furnace, yes.

Q. In a commercial power plant?

A. Yes.

Q. Okay. So it was your understanding that the calcium bromide that's introduced as part of the Chem-Mod Solution, some of it ends up as Br₂ in the plant?

A. Yes.

1149. During his deposition on March 26, 2019, Dr. Abbott stated the following:

Q. Okay. If you turn to Chem-Mod 11838, you see near the top, there's a bold heading Benefits from Mitagent Additive for Reduction in Halogen Injection for Mercury Control?

A. Yes.

Q. All right. And then right below it, it says, as discussed above, the rate of corrosion depends on the addition rate of bromine to coal. In the combustion process, the added bromine forms HBr gas in the furnace. A portion of the HBr gas gets converted into Br₂ that can then react with the elemental mercury to form HgBr₂ or the oxidized mercury. Do you see that?

A. Yes.

Q. Is that your understanding of how the addition of MerSorb in connection with the Chem-Mod Solution functions in a commercial power plant?

A. I think it's just a general statement of any process.

Q. But accurate, as far as you know?

A. Yes.

Dkt. 61, Deposition of Murray Abbott, Ph.D., March 26, 2019, pg. 60:17-61:14. (counsel objections omitted).

Response: Undisputed that Abbott answered as quoted above. That Abbott so answered does not make the testimony admissible for all purposes, however. To clarify, the transcript reads as follows, with objections from Defendants' attorney.

Q. Okay. If you turn to Chem-Mod 11838, you see near the top, there's a bold heading Benefits from Mitagent Additive for Reduction in Halogen Injection for Mercury Control?

A. Yes.

Q. All right. And then right below it, it says, as discussed above, the rate of corrosion depends on the addition rate of bromine to coal. In the combustion process, the added bromine forms HBr gas in the furnace. A portion of the HBr gas gets converted into Br₂ that can then react with the elemental mercury to form HgBr₂ or the oxidized mercury. Do you see that?

A. Yes.

Q. Is that your understanding of how the addition of MerSorb in connection with the Chem-Mod Solution functions in a commercial power plant?

MR. EVALL: Objection to form.

A. I think it's just a general statement of any process.

Q. But accurate, as far as you know?

A. Yes.

1150. During his deposition on March 26, 2019, Dr. Abbott stated the following:

Q. Dr. Abbott, I'm going to show you what's been marked as Abbott Exhibit 4, and it's an e-mail chain bearing production Chem-Mod 38389 through 38392, and we'll kind of walk through the whole document, but at the top you see the last e-mail chain in this document is an e-mail from you to George Kotch and others.

A. Okay.

Q. And do you know who Michael Magnan is?

A. I don't know him, who he is personally, but, obviously, he works for Talen Energy.

Q. And who's Talen Energy?

A. It's a power producer.

Q. Power producer?

A. Yes.

Q. Okay. Do they own and operate coal facilities, coal-fired power plants?

A. Yes.

Q. And they are at least some of those Chem-Mod licensees?

A. Yes.

Q. Okay. And do you see in the cc –

A. Well, the power plants aren't Chem-Mod licensees.

Q. Thank you. They are refined coal licensees that are licensees that are affiliated with the plants?

A. Yes.

Q. And then the next e-mail is from Mr. Kotch to you and others. Do you see that?

A. Yep.

Q. It says, Murray, I am forwarding – I'm forwarding e-mail from Mike Magnan regarding disposition of bromine as CaBr_2 as processed in the furnace and flue gas systems. Please follow up and either expand or correct on the inaccuracies below. Do you see that?

A. Yes.

Q. So does that lead you to believe that Mr. Kotch was trying to formulate an answer to provide back to Mr. Magnan?

A. Mm-mhh, yes.

Q. In response to what the Pennsylvania DEP was asking in connection with their permit?

A. Yes.

Q. And you were responding to Mr. Kotch in response to his question. Do you see that?

A. Yes.

Q. And you first say, I do not have a simple answer to the question. We have not conducted any investigations that I'm aware of into the fate of CaBr₂ in client facilities. George is correct in saying this is a new question that has not been asked by other regulating agencies. Do you see that?

A. Yes.

Q. Now, the next paragraph says, that said, the following is a summary of the behaviors in question. Do you see that?

A. Yes.

Q. And then you say, when CaBr₂ salt enters the furnace with the coal, it decomposes under the high combustion temperatures and recombines with other species to form stable products as the gas is cooled downstream of the burner flames. Do you see that?

A. Yes.

Q. And that's still your understanding, correct?

A. Yes.

Q. The main products are HBr and bromine gas, Br₂. Do you see that?

A. Yes.

Q. And that's still your understanding, correct, that's the main products?

A. Yes.

Q. Okay. The molecular bromine – I'm reading the next sentence, excuse me. The molecular bromine, Br₂, can react with mercury, for example, to form HgBr₂. Do you see that?

A. Yes.

Q. And you would still agree with that statement, correct?

A. Yes.

Dkt. 61, Deposition of Murray Abbott, Ph.D., March 26, 2019, pg. 74:6-81:15. (counsel objections omitted).

Response: Disputed as unsupported. Pl. Supp. PFF ¶ 1150 does not accurately quote the cited transcript. Rather, the transcript reads as follows:

Q. Dr. Abbott, I'm going to show you what's been marked as Abbott Exhibit 4, and it's an e-mail chain bearing production Chem-Mod 38389 through 38392, and we'll kind of walk through the whole document, but at the top you see the last e-mail chain in this document is an e-mail from you to George Kotch and others.

A. Okay.

Q. And do you know who Michael Magnan is?

A. I don't know him, who he is personally, but, obviously, he works for Talen Energy.

Q. And who's Talen Energy?

A. It's a power producer.

Q. Power producer?

A. Yes.

Q. Okay. Do they own and operate coal facilities, coal-fired power plants?

A. Yes.

Q. And they are at least some of those Chem-Mod licensees?

A. Yes.

Q. Okay. And do you see in the cc –

A. Well, the power plants aren't Chem-Mod licensees.

Q. Thank you. They are refined coal licensees that are licensees that are affiliated with the plants?

A. Yes.

Q. And then the next e-mail is from Mr. Kotch to you and others. Do you see that?

A. Yep.

Q. It says, Murray, I am forwarding – I'm forwarding e-mail from Mike Magnan regarding disposition of bromine as CaBr_2 as processed in the furnace and flue gas systems. Please follow up and either expand or correct on the inaccuracies below. Do you see that?

A. Yes.

Q. So does that lead you to believe that Mr. Kotch was trying to formulate an answer to provide back to Mr. Magnan?

A. Mm-mhh, yes.

Q. In response to what the Pennsylvania DEP was asking in connection with their permit?

A. Yes.

Q Okay. And then do you see at the top e-mail now -- we've worked our way back into the top.

A Yes.

Q. You were then responding to Mr. Kotch in response to his question. Do you see that?

A. Yes.

Q. And you first say, I do not have a simple answer to the question. We have not conducted any investigations that I'm aware of into the fate of CaBr_2 in client facilities. George is correct in saying this is a new question that has not been asked by other regulating agencies. Do you see that?

A. Yes.

Q. Now, the next paragraph says, that said, the following is a summary of the behaviors in question. Do you see that?

A. Yes.

Q. And then you say, when CaBr_2 salt enters the furnace with the coal, it decomposes under the high combustion temperatures and recombines with other species to form stable products as the gas is cooled downstream of the burner flames. Do you see that?

A. Yes.

Q. And that's still your understanding, correct?

A. Yes.

Q. The main products are HBr and bromine gas, Br_2 . Do you see that?

A. Yes.

Q. And that's still your understanding, correct, that's the main products?

MR. EVALL: Objection, lack of foundation.

A. Yes.

Q. Okay. The molecular bromine – I'm reading the next sentence, excuse me. The molecular bromine, Br_2 , can react with mercury, for example, to form HgBr_2 . Do you see that?

A. Yes.

Q. And you would still agree with that statement, correct?

MR. EVALL: Objection, lack of foundation.

A. Yes.

D.I. # 61, Abbott Dep. 74:6–81:15. That Abbott so testified does not make the testimony admissible for all purposes, however.

1151. During his deposition on April 4, 2019, Dr. Fry stated the following:

Q. I said to make sure I understand, you could not use the data from Niksa to determine whether molecular bromine is formed in a circulating fluid bed reactor. Is that your testimony?

A. In order to predict the behavior of molecular bromine or its formation in a CFBC, I would use a very different temperature profile. The data that Niksa provided is temperature dependent, includes a temperature quench rate and residence times, and from that information you could infer what would happen in the CFBC.

Q. And what would you infer?

A. I can't answer that question. I would need far more information about the CFBC.

Q. Okay.

A. It's a very specific to the unit. If we are talking about utility scale CFBCs, it's much different than, say, in the Julien CFBC, which is a lab scale CFBC.

Dkt. 77, Deposition of Andrew Fry, Ph.D., April 4, 2019, pg. 158:13-159:12. (counsel objections omitted.)

Response: Disputed as unsupported. Pl. Supp. PFF ¶ 1151 does not accurately quote the cited transcript. Rather, the transcript reads as follows:

Q. (By Mr. Evall) I said to make sure I understand, you could not use the data from Niksa to determine whether molecular bromine is formed in a circulating fluid bed reactor. Is that your testimony?
MR. FARNEY: And objection. Misstates the 19 earlier testimony. Objection as to form.

A. In order to predict the behavior of molecular bromine or its formation in a CFBC, I would use a very different temperature profile. The data that Niksa provided is temperature dependent, includes a temperature quench rate and residence times, and from that information you could infer what would happen in the CFBC.

Q. And what would you infer?

MR. FARNEY: Objection as to form. Vague 4 and overbroad.

A. I can't answer that question. I would need far more information about the CFBC.

Q. (By Mr. Evall) Okay.

A. It's very specific to the unit. If we are talking about utility scale CFBCs, it's much different than, say, in the Julien CFBC, which is a lab scale CFBC.

D.I. # 77, Fry Dep. 158:13–159:12.1152.

1152. During his deposition on April 4, 2019, Dr. Fry stated the following:

Q. My question is, in reaching that opinion did you take accounts of the factors that are listed in this sentence in paragraph 200, and if so, how?

A. Yes, I did. I – I relied heavily on Niksa article for this evaluation. For Niksa has modeled three full scale power plants that are, in my opinion, representative of the conditions that comprise these identified factors that are similar enough to each other and to the Columbia Unit 1 and Weston Unit 3 that I expect the same chemical behavior.

Q. Okay. And you did that before providing your opinion of infringement in your first report?

A. I cannot remember the first date that I looked at the Niksa article. It was well before this proceedings.

Q. (By Mr. Evall) By “this proceedings,” do you mean the lawsuit? The deposition?

A. I mean, the Niksa article is from what? 2011? 2012? I – I saw it years ago.

Q. Okay.

A. So his teachings certainly helped me to form my opinion.

Q. Okay. And you – your testimony is that you considered the Niksa teachings in forming your opinions that you reported in your expert reports in this case. Is that right?

A. I don't remember referring to Niksa in my first report. However, Niksa's teachings have helped me understand the chemistry that we are discussing and helped me to form my opinions.

Q. (By Mr. Evall): Does that mean you offered the opinions in our first report without taking into account the teachings of Niksa?

A. I don't know how I can separate those because Niksa's materials, his methods, his model, have – have been what I considered as I developed my understanding of how this chemistry works.

Dkt. 77, Deposition of Andrew Fry, Ph.D., April 4, 2019, pg. 142:18-144:15. (counsel objections omitted).

Response: Undisputed that Fry answered as quoted above. To clarify, the original testimony contains objections from Defendants' attorney.

1153. During his deposition on April 4, 2019, Dr. Fry stated the following:

Q. (By Mr. Evall) In view of – and you considered the – okay. Let's try again. The factors listed starting on the sixth line of paragraph 200 of your report, of your second report –

A. Yes.

Q. –did you consider those factors in forming your opinions in this case?

A. Yes.

Q. How did you consider them?

A. Niksa initiates his model in the same way that anyone with ordinary skill in the art would initiate their model, with thermodynamic calculations. Thermodynamic calculations represent the composition that would be in the combustion zone, equilibrium. And I know that for calcium bromide this well exceeds the composition where – or the temperature where decomposition would occur. I also understand from my own modeling, not of bromine but of chlorine and from Niksa's modeling, that temperature profile and quench rate are important, along with residence time, for determining the partitioning between HBr and Br₂. And I understood that Niksa used a real temperature profile for a real utility boiler to determine that chemistry, as I have done in previous modeling. And I understood that in – at temperatures that were appropriate, HBr would – and Br radicals would combine to form Br₂.

Dkt. 77, Deposition of Andrew Fry, Ph.D., April 4, 2019, pg. 146:4-147:7.

Response: Undisputed that Fry answered as quoted above. To clarify, Fry stated that HBr and Br radicals would combine to “form” Br₂, not “to for Br₂.”

1154. Dr. Fry’s Rebuttal Expert Report States: “I note that Dr. Wilcox relies on Niksa for her conclusions concerning mercury oxidation pathways. Niksa’s conclusions are based on modeling results which have been validated against mercury data. However, no information was presented about validation of bromine speciation. Therefore we cannot conclude that Niksa’s model correctly predicts bromine speciation. One cannot conclude based on the Niksa article that molecular bromine is necessarily generated, which is the standard that Dr. Wilcox must meet.” Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 274.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1155. U.S. Patent No. 6,808,692 is titled “Enhanced Mercury Control in Coal-Fired Power Plants.” Dkt. 38-1, U.S. Patent No. 6,808,692.

Response: Undisputed.

1156. The ’692 Patent’s specification states: “[t]he present invention relates to a method of reducing the mercury emissions for coal-fired power plants.” Dkt. 38-1, U.S. Patent No. 6,808,692, 1:7-8.

Response: Undisputed that the ’692 Patent contains the quoted language, but that does not make the statement admissible for all purposes.

1157. The ’692 Patent’s specification states:

The United States Environmental Protection Agency (EPA) in its Utility Air Toxins Report to Congress-February 1998 concluded that “mercury from coal-fired power plants is a serious concern. Power plants account for about 52 tons of annual manmade mercury emissions in the country.”

...

The United States Department of Energy (DOE) indicated that it “wants to develop a wide array of mercury control options for power plants that can reliably reduce emissions by 50 to 70% by 2005 and 90% by 2010.” ...

Dkt. 38-1, U.S. Patent No. 6,808,692, 1:11-24.

Response: Undisputed that the ’692 Patent contains the quoted language, but that does not make the statement admissible for all purposes. To clarify, the

emphases in Pl. Supp. PFF ¶ 1157 were added by Plaintiffs.

1158. The '692 Patent's specification states: ""This mercury removal technique requires massive hydrogen chloride injection into mercury containing flue gas, at HCl levels of 500 to 1500 ppm, which would result in excessive corrosion of coal fired power plant steel components." Dkt. 38-1, U.S. Patent No. 6,808,692, 1:35-39.

Response: Undisputed that the '692 Patent contains the quoted language, but that does not make the statement admissible for all purposes.

1159. The '692 Patent's specification states: "Therefore, this technique for mercury control is not believed to be commercially viable in coal-fired power plants." Dkt. 38-1, U.S. Patent No. 6,808,692, 1:46-48.

Response: Undisputed that the '692 Patent contains the quoted language, but that does not make the statement admissible for all purposes.

1160. The '692 Patent's specification states: "This technique requires the use of substantial expensive capital equipment foreign to conventional coal fired power plants." Dkt. 38-1, U.S. Patent No. 6,808,692, 1:54-56.

Response: Undisputed that the '692 Patent contains the quoted language, but that does not make the statement admissible for all purposes.

1161. The '692 Patent's specification states: "[I]ts excessive use of hydrogen chloride, especially at 110-170° is certain to cause highly undesirable corrosion of steel containing surfaces in coal-fired power plants to iron chlorides." Dkt. 38-1, U.S. Patent No. 6,808,692, 1:60-63.

Response: Undisputed that the '692 Patent contains the quoted language, but that does not make the statement admissible for all purposes.

1162. The '692 Patent's specification states: "This technique requires the use of substantial expensive capital equipment foreign to conventional coal fired power plants plus the use of very expensive precious metal catalysts." Dkt. 38-1, U.S. Patent No. 6,808,692, 2:4-7.

Response: Undisputed that the '692 Patent contains the quoted language, but that does not make the statement admissible for all purposes.

1163. The '692 Patent's specification states: "Unfortunately, this technique requires the use of substantial expensive capital equipment foreign to conventional coal fired power plants plus the use of consumable metal catalysts." Dkt. 38-1, U.S. Patent No. 6,808,692, 2: 13-16.

Response: Undisputed that the '692 Patent contains the quoted language, but that does not make the statement admissible for all purposes.

1164. The '692 Patent's specification states: "Addition of 'bubblers' or liquid scrubbers into a coal-fired power plant would substantially increase pressure drops through the system thereby increasing equipment sizing requirements (e.g. air blowers). This would increase both capital and operating costs for the operation of air blowers." Dkt. 38-1, U.S. Patent No. 6,808,692, 3:18-24.

Response: Undisputed that the '692 Patent contains the quoted language, but that does not make the statement admissible for all purposes.

1165. The '692 Patent's specification states, in the "Summary of the Current Invention" section: "According to the invention, there is provided a method of treating coal combustion flue gas, preferably that obtained after the 'superheater' section of a coal-fired plant, for example the economizer inlet." Dkt. 38-1, U.S. Patent No. 6,808,692, 3:66-4:2.

Response: Undisputed that the '692 Patent contains the quoted language, but that does not make the statement admissible for all purposes.

1166. In the '692 Patent Reexamination, the patent owner stated:

Considering the Oehr Patent in its entirety and relying on the art of record to demonstrate what a person of ordinary skill in the art (a "POSITA") would know, Oehr teaches that thermolabile molecular halogen precursors ("TMHP"), including magnesium bromide and calcium bromide, thermolabile molecular bromine precursors ("TMBP"), can be added, for example, after the superheater section of a coal combustor, where a POSITA would know the temperature ranges from about 649°C to about 1232°C and that at such temperatures both magnesium bromide and calcium bromide will decompose to form HBr which in turn will form Br₂ which in turn will oxidize elemental mercury to HgBr₂.

Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Patent Owner's Amended Response Brief at pg. 5 (footnote omitted).

Response: Disputed as unsupported by admissible evidence. Pl. Supp. PFF

¶ 1166 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Patent Owner's Amended Response Brief in *Alstom Power Inc.*

v. Hazelmere Research Ltd., which is not sponsored by sworn testimony.

Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Patent Owner's Amended Response Brief is offered to prove any fact other than it contains the quoted text, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

1167. In the '692 Patent Reexamination, the patent owner stated:

Appellant ignores the teachings of the Specification, which provide that TMHPs can be injected after the superheater and at the economizer inlet where the temperatures exceed 500°C, in arguing that Paulik and Yang support Appellant's argument that the Claims lack support and are unpredictable. Appeal at 18. The Examiner correctly found that, based on Paulik, it was known in the art that calcium bromide is a thermolabile molecular halogen precursor at temperatures between 500°C and 1000°C. RAN at 15. Paulik furthermore demonstrated the impact of oxygen on the thermolability of calcium bromide.

Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Patent Owner's Amended Response Brief at pg. 12.

Objection: Pl. Supp. PFF ¶ 1167 is vague and ambiguous. Plaintiffs have not defined "injected," and it is not clear how the term is being used in this asserted fact. Also, the term "injected" is hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the term in this factual assertion.

Response: Disputed as unsupported by admissible evidence. Pl. Supp. PFF ¶ 1167 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Patent Owner's Amended Response Brief in *Alstom Power Inc.*

v. Hazelmere Research Ltd., which is not sponsored by sworn testimony.

Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Patent Owner's Amended Response Brief is offered to prove any fact other than it contains the quoted text, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

1168. In the '692 Patent Reexamination, the patent owner's brief has a heading entitled "Claims 1, 8-19 and 26-33 are enabled because magnesium bromide and calcium bromide are thermolabile molecular bromine precursors at the temperatures taught in the specification." Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Patent Owner's Amended Response Brief at pg. 13.

Response: Undisputed that the Patent Owner's Amended Response Brief contains the quoted language, but that does not make the statement admissible for all purposes.

1169. In the '692 Patent Reexamination, the patent owner stated: "The Specification teaches that a TMBP may be injected into a flue gas at temperatures of from about 649 to about 1232°C." Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Patent Owner's Amended Response Brief at pg. 13.

Objection: Pl. Supp. PFF ¶ 1169 is vague and ambiguous. Plaintiffs have not defined "injected" or "flue gas," and it is not clear how the terms are being used in this asserted fact. Also, the terms "injected" and "flue gas" are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion.

Response: Disputed as unsupported by admissible evidence. Pl. Supp. PFF ¶ 1169 purports to provide scientific, technical, and specialized knowledge, but

Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Patent Owner's Amended Response Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.*, which is not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Patent Owner's Amended Response Brief is offered to prove any fact other than it contains the quoted text, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

1170. In the '692 Patent Reexamination, the patent owner stated: "the Specification quite clearly teaches injecting magnesium and calcium bromides into a flue gas after the superheater and, for example, at the economizer inlet, where the bromide compounds will affect oxidation of mercury to mercuric bromide." Dkt. 38-10, *Alstom Power Inc. v. Hazelmere Research Ltd.*, Appeal 2013-008262, Patent Owner's Amended Response Brief at pg. 11.

Objection: Pl. Supp. PFF ¶ 1170 is vague and ambiguous. Plaintiffs have not defined "injecting" or "flue gas," and it is not clear how the terms are being used in this asserted fact. Also, the terms "injected" and "flue gas" are hotly contested in this litigation. D.I. # 88, Amended Joint Table of Terms Requiring Construction at 2. It is not clear how Plaintiffs are using the terms in this factual assertion.

Response: Disputed as unsupported by admissible evidence. Pl. Supp. PFF ¶ 1170 purports to provide scientific, technical, and specialized knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Patent Owner's Amended Response Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.*, which is not sponsored by sworn testimony.

Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Patent Owner's Amended Response Brief is offered to prove any fact other than it contains the quoted text, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

1171. In the '692 Patent Reexamination, the Third-Party Requestor stated: "Claims 1, 8-19, and 26-33 are broadly directed to any bromide compound (or any bromide compound selected from the group consisting of magnesium compounds and calcium compounds) that decomposes at 527°C and below to form molecular bromine. Yet the specification provides no guidance for determining whether a bromide compound (or a bromide compound selected from the group consisting of magnesium compounds and calcium compounds) will decompose at 527°C and below to form molecular bromide." Dkt. 38-10, *Alstom Power Inc. v. Hazemere Research Ltd.*, Appeal 2013-008262, Third-Party Requester's Appellant Brief at pg. 21.

Response: Disputed as incomplete, out of context, and unsupported by admissible evidence. To clarify, the above referenced text comes from page 19, not page 21 of the Third Party Requester's Appellant Brief. Further, the above referenced language misstates the text of the Third Party Requester's Appellant Brief, which reads as follows:

Claims 1, 8-19, and 26-33 are broadly directed to any bromide compound (or any bromide compound selected from the group consisting of magnesium compounds and calcium compounds). Yet the specification provides no guidance for determining at what temperature, if any, a bromide compound (or a bromide compound selected from the group consisting of magnesium compounds and calcium compounds) will decompose to Br₂. Instead, the specification merely recites the dehydration temperature for MgBr₂, which provides no direction at all for determining whether a bromide compound (or a bromide compound selected from the group consisting of magnesium compounds and calcium compounds) will decompose at 527°C and below to Br₂.

D.I. # 38-10, Third-Party Requester's Appellant Brief at 19. Additionally, Pl.

Supp. PFF ¶ 1171 purports to provide scientific, technical, and specialized

knowledge, but Plaintiffs fail to support the assertion with competent expert opinion. Rather, Plaintiffs cite the Third Party Requester's Brief in *Alstom Power Inc. v. Hazelmere Research Ltd.*, which is not sponsored by sworn testimony. Accordingly, this evidence is an unqualified and untimely disclosed expert opinion and should be excluded per Fed. R. Civ. P. 26(a)(2)(D) and 37(c) and Fed. R. Evid. 702. Furthermore, to the extent the Third Party Requester's Brief is offered to prove any fact other than it contains the quoted text, this evidence is inadmissible hearsay and should be excluded per Fed. R. Evid. 802.

1172. [Intentionally omitted].

1173. [Intentionally omitted].

1174. [Intentionally omitted].

1175. Claim 10 of the '692 Patent recites:

10. A method as claimed in claim 1, wherein the alkaline solid particles are those derived from the fusion of coal ash with alkali and an alkali flux.

Response: Undisputed that the '692 Patent contains the quoted statement, but that does not make the statement admissible for all purposes.

Dkt. 38-1, U.S. Patent No. 6,808,692, claim 10.

1176. Claim 24 of the '692 Patent recites:

24. The method of claim 19 wherein the alkaline solid particles provided at Step (b) are derived from the fusion of coal ash with alkali and an alkali flux.

Dkt. 38-1, U.S. Patent No. 6,808,692, Reexamination Certificate, claim 24.

Response: Undisputed that the '692 Patent contains the quoted statement, but that does not make the statement admissible for all purposes.

1177. Dr. Fry's Rebuttal Expert Report States:

Claims 10 and 24 depend from claims 1 and 19 respectively. Because Julien does not disclose all of the claim elements of claims 1 and 19, it therefore does not anticipate claims 10 and 24. Further, Julien does not disclose the claim element "**A method as claimed in claim 1, wherein the alkaline solid**

particles are those derived from the fusion of coal ash with alkali and an alkali flux” as that phrase is used in claim 10 of the ’692 Patent or the claim element **“The method of claim 19 wherein the alkaline solid particles provided at Step (b) are derived from the fusion of coal ash with alkali and an alkali flux”** as that phrase is used in claim 24 of the ’692 Patent. Because Julien does not disclose oxidation of mercury to mercuric bromide by way of molecular bromine generated from a thermolabile molecular bromine precursor, it cannot disclose adsorption of mercuric bromide by alkaline particles, including by alkaline solid particles derived from fusion of coal ash with alkali and an alkali flux.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 211.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1178. Dr. Fry’s Rebuttal Expert Report States:

As I understand the scope of claims 10 and 24 of the ’692 Patent, this claim element requires that alkali flux is something that is added to the system, as opposed to something that occurs naturally in the coal. The ’692 Patent specification refers to the “addition” of lime plus a lime flux and refers to the lime plus a lime flux as an “additive” and “additive formula.” ’692 Patent at 7:29-38. The specification also refers to the ’235 Patent, saying the ’235 Patent describes adding a fossil fuel with an “additive” ’692 Patent at 2:37-47. Because I understand claims 10 and 24 of the ’692 Patent to require that the alkali flux be an additive, rather than something that is naturally present in the coal or coal ash, Julien does not disclose this claim element. This would be true even if one wrongly concluded that Julien did inherently disclose claim 1 and 19.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 212.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1179. Claim 12 of the ’692 Patent recites:

12. A method as claimed in claim 1, wherein the alkaline solid particles are those derived from flue gas desulphurization solids.

Dkt. 38-1, U.S. Patent No. 6,808,692, claim 12.

Response: Undisputed that the ’692 Patent contains the quoted statement, but

that does not make the statement admissible for all purposes.

1180. Claim 26 of the '692 Patent recites:

26. The method of claim 19 wherein the alkaline solid particles provided at Step (b) are derived from flue gas desulphurization (FGD) solids.

Dkt. 38-1, U.S. Patent No. 6,808,692, Reexamination Certificate, claim 26.

Response: Undisputed that the '692 Patent contains the quoted statement, but that does not make the statement admissible for all purposes.

1181. Dr. Fry's Rebuttal Expert Report States:

Claims 12 and 26 depend from claims 1 and 19 respectively. Because Julien does not disclose all of the claim elements of claims 1 and 19, it therefore does not anticipate claims 12 and 26. Julien does not disclose the claim elements **"A method as claimed in claim 1, wherein the alkaline solid particles are those derived from flue gas desulphurization solids"** as that phrase is used in claim 12 of the '692 Patent, or the claim element **"The method of claim 19 wherein the alkaline solid particles provided at Step (b) are derived from flue gas desulphurization (FGD) solids"** as that phrase is used in claim 26 of the '692 Patent. Because Julien does not disclose oxidation of mercury to mercuric bromide by way of molecular bromine generated from a thermolabile molecular bromine precursor, it cannot disclose adsorption of mercuric bromide by alkaline solid particles, including by alkaline solid particles derived from flue gas desulphurization solids. Moreover, even if Julien were assumed to disclose the elements of claims 1 and 19, it would not anticipate claims 12 and 26 because Julien independently does not disclose the "flue gas desulphurization (FGD) solids" element. In my opinion, the experiments performed by Julien are not attempts to "desulfurize" flue gas, and in fact Julien teaches that the injection of CaBr₂ is not effective at desulfurizing flue gas. I would not characterize anything used in Julien as "flue gas desulphurization solids." Moreover, contrary to Dr. Wilcox's statement, in my opinion, a POSA would not consider fly ash to be a "desulfurization solid."

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 214.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1182. Claim 18 of the '692 Patent recites:

18. The method as claimed in claim 1, wherein the mercuric bromide containing alkaline solid particles are suitable for use in cementitious

products.

Dkt. 38-1, U.S. Patent No. 6,808,692, claim 18.

Response: Undisputed that the '692 Patent contains the quoted statement, but that does not make the statement admissible for all purposes. To clarify, the text of Claim 18 of the '692 Patent actually states:

18. The method as claimed in claim 1, wherein the mercuric [halide] bromide containing alkaline solid particles are suitable for use in cementitious products.

D.I. # 38-1, '692 Patent at Claim 18.

1183. Claim 27 of the '692 Patent recites:

27. The method of claim 19, further comprising the step of incorporating the solid alkaline particles collected at Step (b) into a cementitious product.

Dkt. 38-1, U.S. Patent No. 6,808,692, Reexamination Certificate, claim 27.

Response: Undisputed that the '692 Patent contains the quoted statement, but that does not make the statement admissible for all purposes.

1184. Dr. Fry's Rebuttal Expert Report States:

Claims 18 and 27 depend from claims 1 and 19 respectively. Because Julien does not disclose all of the claim elements of claims 1 and 19, it therefore does not anticipate claims 18 and 27. Further, Julien does not disclose the claim elements **"The method as claimed in claim 1, wherein the mercuric bromide containing alkaline solid particles are suitable for use in cementitious products"** as that phrase is used in claim 18 of the '692 Patent, or the claim element **"the method of claim 19, further comprising the step of incorporating the solid alkaline particles collected at Step (b) into a cementitious product"** as that phrase is used in claim 27 of the '692 Patent. As discussed above, Julien does not disclose a thermolabile molecular bromine precursor or using the resulting molecular bromine to effect oxidation of mercury, or adsorption of mercuric bromide onto alkaline particles, and therefore cannot disclose adsorption of mercuric bromide on alkaline solid particles derived from a thermolabile molecular bromine precursor and further cannot disclose mercuric bromide containing alkaline solid particles that are suitable for use in cementitious products. Julien certainly does not disclose the step of incorporating mercuric bromide containing alkaline solid particles into a cementitious product as is claimed in claim 27. To the extent that Dr. Wilcox has opined that the alkaline solid

particles of claim 1 are alkaline fly ash particles, as in claim 8, I disagree that they would be suitable for use in cementitious products because they likely would contain too much unburned carbon.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 217.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1185. Dr. Fry's Rebuttal Expert Report States:

Claims 10 and 24 depend from claims 1 and 19 respectively. Because the prior art cited by Dr. Wilcox does not anticipate claims 1 and 19 as discussed above, claims 10 and 24 are not invalid as obvious for at least the reasons discussed above. Further, Julien in combination with Oehr does not disclose or make obvious the claim element **“A method as claimed in claim 1, wherein the alkaline solid particles are those derived from the fusion of coal ash with alkali and an alkali flux”** as that phrase is used in claim 10 of the '692 Patent or the claim element **“The method of claim 19 wherein the alkaline solid particles provided at Step (b) are derived from the fusion of coal ash with alkali and an alkali flux”** as that phrase is used in claim 24 of the '692 Patent. As I understand the scope of claims 10 and 24 of the '692 Patent, this claim element requires that alkali flux is something that is added to the system, as opposed to something that occurs naturally in the coal. Julien does not disclose this element as discussed in ¶ 212 above. A POSA would not be motivated to combine Julien with Oehr. First, Julien is not directed to solving any particular problem, but rather is simply a study to observe the effects of halogens on CO, SO₂ and NO_x emissions. If one of ordinary skill in the art were trying to solve the problem of reducing SO_x and or NO_x emissions, they would not be motivated to use CaBr₂ as is disclosed in Julien, because Julien teaches that it is not effective for SO₂ removal and not very effective for NO_x removal. Because Julien describes it as being ineffective for these purposes, a POSA would not be motivated to use CaBr₂ either with or without the addition of a lime flux. A POSA would not be motivated to combine the system described in Julien with the use of a lime flux as described in Oehr, because A POSA would want to avoid reducing the melting temperature of the bed particulate material in a CFBC. Moreover, a POSA would not have a reasonable expectation that combining the lime flux taught by Oehr with the system used in Julien would result in success in making the invention as defined by claims 10 and 24, because the alkaline particles of claims 10 and 24 adsorb mercuric bromide according to the claim, and neither Julien nor Oehr discloses adsorption of mercuric bromide on alkaline solid particles. Even if such adsorption were inherently disclosed in Julien (which it is not), a POSA would not have known it to be happening and therefore would have had no motivation to combine, much less any expectation of

success in using alkaline particles that are derived from the fusion of coal ash with alkali and an alkali flux to adsorb mercury.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 286.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1186. Dr. Fry's Rebuttal Expert Report States:

Claims 13 and 15 depend from claim 1. Because the prior art cited by Dr. Wilcox does anticipate claim 1 as discussed above, claims 13 and 15 are not invalid as obvious for at least the reasons discussed above. Further, Julien in combination with Kilgroe and/or the background knowledge of a

POSA does not disclose or make obvious the claim element **“The method as claimed in claim 1, wherein said particulate matter collection device is an electrostatic precipitator”** as that phrase is used in claim 13 of the '692 Patent. To the extent that Dr. Wilcox is opining that a POSA would use an ESP with the system described by Julien, I disagree with that opinion. Julien discloses a pilot scale circulating fluidized bed combustor that has a baghouse filter. A POSA would not be motivated to replace the baghouse filter of Julien with an electrostatic precipitator because the baghouse filter is more effective, easier to operate, and the advantages of an ESP are not necessary at the pilot scale. To the extent that Dr. Wilcox is suggesting that a POSA would have been motivated to use the CaBr₂ of Julien in an existing system already using an ESP, I do not see that as the proper inquiry, as Dr. Wilcox has not provided an analysis of such an existing system with respect to the other claim elements. That is to say, it appears that Dr. Wilcox opines that claims 13 and 15 of the '692 Patent are rendered obvious by Julien in view of Kilgroe, but her analysis with respect to these claims appears to address the reverse, i.e., combining an isolated element from Julien into a reference that she has not analyzed with respect to the other claim elements. Although I do not consider this to be the proper analysis, I disagree that a POSA would be motivated to use the teaching of Julien relating to the addition of CaBr₂ to “improve desulphurization and oxidized mercury adsorption properties of particles” with existing coal-fired utilities using a ESP as Dr. Wilcox claims, because as discussed above, Julien does not teach that CaBr₂ is effective for desulphurization or for mercury removal.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 287.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1187. Dr. Fry's Rebuttal Expert Report States:

Claims 16 and 28 depend from claims 1 and 29 respectively. Because the prior art cited by Dr. Wilcox does not anticipate claims 1 and 19 as discussed above, claims 16 and 28 are not invalid as obvious for at least the reasons discussed above. Further, Julien in combination with Kilgroe and/or the background knowledge of a POSA does not disclose or make obvious the claim element **“The method as claimed in claim 1, wherein the resulting treated flue gas having had particulate matter removed is passed through a flue gas desulphurization system (FGD) containing a liquid”** as that phrase is used in claim 16 of the '692 Patent or the claim element **“The method claim 19, further comprising the step of passing the flue gas through a flue gas desulphurization system (FGD)”** as that phrase is used in claim 28 of the '692 Patent. Dr. Wilcox opines that “it would have been obvious to a POSA to add CaBr₂, as taught by Julien, to a system using a wet FGD system, whereby particulate matter removed is passed through the FGD containing liquid.” (Wilcox First Report, ¶ 210). I disagree that a POSA would pass particulate matter through an FGD containing a liquid. In any event, even if a POSA were to do so, that would not satisfy the claim element, which requires that the treated flue gas, having had particulate matter removed, is passed through an FGD containing a liquid. To the extent that Dr. Wilcox is suggesting that a POSA would have been motivated to use the CaBr₂ of Julien in an existing system already using an FGD containing a liquid, I do not see that as the proper inquiry, as Dr. Wilcox has not provided an analysis of such an existing system with respect to the other claim elements. That is to say, it appears that Dr. Wilcox opines that claims 16 and 28 of the '692 Patent are rendered obvious by Julien in view of Kilgroe, but her analysis with respect to these claims appears to address the reverse, i.e., combining an isolated element from Julien into a reference that she has not analyzed with respect to the other claim elements. Although I do not consider this to be the proper analysis, I disagree that a POSA would be motivated to use the teaching of Julien relating to the addition of CaBr₂ to “improve desulphurization and oxidized mercury adsorption properties of particles” with existing coal-fired utilities using a wet FGD as Dr. Wilcox claims, because as discussed above, Julien does not teach that CaBr₂ is effective for desulphurization or for mercury removal.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 288.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1188. The '692 Patent's specification states:

According to the invention, there is provided a method of treating coal combustion flue gas, preferably that obtained after the “superheater” section of a coal-fired plant, for example the economizer inlet (Singer, Joseph G editor. 1991. Combustion Fossil Power. Combustion

Engineering, Inc. Windsor, Conn., page 5—10), with a source of molecular halogen, such as chlorine gas or a thermolabile alkali metal hypohalite, for example calcium hypochlorite solution able to convert mercury rapidly to mercuric chloride, easily adsorbable by alkaline solids such as subbituminous fly ash, lignite fly ash, alkali fused bituminous fly ash or alkaline dry FGD solids capturable by ESPs, FFs, BHs alone or ahead of a liquid such as a wet FGD scrubbing liquor.

Dkt. 38-1, U.S. Patent No. 6,808,692, 3:66-4:11.

Response: Undisputed that the '692 Patent contains the quoted statement, but that does not make the statement admissible for all purposes.

1189. The '692 Patent's specification states: "Molecular halogen precursors containing calcium are particularly desirable in cases where the fly ash or alkali fused fly ash is intended to be used for cementitious applications e.g. in concrete or blended cements." Dkt. 38-1, U.S. Patent No. 6,808,692, 4:19-22.

Response: Undisputed that the '692 Patent contains the quoted statement, but that does not make the statement admissible for all purposes.

1190. The '692 Patent's specification states: "Molecular bromine can be generated by thermal decomposition of a dehydrated bromide salt solution in the presence of oxygen, for example magnesium bromide solution." Dkt. 38-1, U.S. Patent No. 6,808,692, 4:60-62.

Response: Undisputed that the '692 Patent contains the quoted statement, but that does not make the statement admissible for all purposes.

1191. The '692 Patent's specification contains Table 1 in column 4, which lists decomposition temperatures in degrees Celsius of calcium hypochlorite, magnesium bromide, and potassium iodide. Dkt. 38-1, U.S. Patent No. 6,808,692, col. 4, Table 1.

Response: Undisputed that the '692 Patent contains the quoted statement, but that does not make the statement admissible for all purposes. To clarify, Table 1 actually lists decomposition temperatures for potassium tri-iodide, not potassium iodide.

1192. The '692 Patent's specification states:

The conversion of mercury to its mercuric halide forms is thermodynamically favoured at temperatures of coal combustor flue gas,

especially coal combustor flue gas between economizer inlets and ESPs, FGDs, BHs, or FFs, as indicated by the negative values for the free energy of formation of mercuric halides, from elemental mercury and molecular halogen, in kilojoules/mole as a function of Celcius temperature, as shown in table 2 below....”

Dkt. 38-1, U.S. Patent No. 6,808,692, 4:66-5:6.

Response: Undisputed that the '692 Patent contains the quoted statement, but that does not make the statement admissible for all purposes.

1193. The '692 Patent's specification contains Table 2 in column 5, which lists certain values for free energy of formation of mercuric halides from elemental mercury and molecular halogen at certain temperatures in degrees Celsius. Dkt. 38-1, U.S. Patent No. 6,808,692, col. 5, Table 2.

Response: Undisputed that the '692 Patent contains the referenced information, but that does not make the evidence admissible for all purposes.

1194. The '692 Patent's specification states: “The larger the negative free energy of formation, the more likely the reaction is to proceed. Clearly from table 2, it can be seen that the formation of mercuric chloride from elemental mercury and molecular chlorine is particularly favoured between 127 and 527°C. typical of post-superheater coal combustor flue gas zones.” Dkt. 38-1, U.S. Patent No. 6,808,692, 5:20-5:25.

Response: Undisputed that the '692 Patent contains the quoted statement, but that does not make the statement admissible for all purposes.

1195. During his deposition on April 4, 2019, Dr. Fry stated the following:

Q. (By Mr. Evall) I'm going back to your paragraph 200. How did you account for the composition of the system walls in your opinion that molecular bromine is formed in Weston and Columbia?

A. The system walls' variation between boiler and boiler are very minimal.

Q. For all types of boilers, or just for tangential-fired boilers?

A For tangentially fired boilers and wall-fired boilers. Circulating fluidized bed boilers and cyclones are different. And there – and there's a very good reason for that.

Dkt. 77, Deposition of Andrew Fry, Ph.D., April 4, 2019, pg. 151:10-21.

Response: Undisputed that Fry testified as quoted above.

1196. During his deposition on April 4, 2019, Dr. Fry stated the following:

Q. So you would need to – in order to determine whether molecular bromine was formed, you would need to have an understanding of what those surfaces are?

A. Well, I bring those up with respect to Niksa, because I know that Niksa modeled three boilers that had steel tube walls, and I feel comfortable that that – that particular factor would not be significantly different in the infringing boilers because they're tangentially fired boilers. They have steel tube walls.

Dkt. 77, Deposition of Andrew Fry, Ph.D., April 4, 2019, pg. 152:8-18.

Response: Undisputed that Fry testified as quoted above. To clarify, Fry referred to "steel wall tubes," not "steel tube walls."

1197. During his deposition on April 4, 2019, Dr. Fry stated the following:

Q. (By M. Evall) Is it possible to know of operating conditions for tangential-fired coal-burning plants where no molecular bromine is formed?

A. Tangentially fired plants don't vary operating conditions into regions where I would consider no calcium bromine would form molecular bromine.

Dkt. 77, Deposition of Andrew Fry, Ph.D., April 4, 2019, pg. 159:21-160:3.

Response: Undisputed that Fry testified as quoted above.

1198. During his deposition on April 4, 2019, Dr. Fry stated the following:

Q. (By Mr. Evall) And does that vary – the temperatures typical of coal combustor flue gas, does that vary for different kinds of boilers? Or is that range pretty much the same, whether it's a tangential fired furnace, a wall fired furnace, a cyclone furnace, a fluidized bed furnace, or an arch fired furnace of boiler?

A. It's very similar for wall fired and tangentially fired units. I've already discussed the differences with respect to circulating fluidized bed combustors.

Dkt. 77, Deposition of Andrew Fry, Ph.D., April 4, 2019, pg. 186:15-25.

Response: Undisputed that Fry testified as quoted above.

1199. Dr. Fry's Rebuttal Expert Report States: In my opinion, a POSA would understand that the '692 Patent teaches that the injection of the thermolabile molecular bromine precursor should occur *at or upstream* of the points where the conversion to molecular bromine takes place, i.e., it should be available in the system at temperatures where the identified reactions are thermodynamically favored. Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 165.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1200. During her deposition on March 29, 2019, Dr. Wilcox stated the following:

Q. Why did you choose not to visit the other facility, the other power plant?

A. I felt I had seen enough with the one.

Dkt. 74, Deposition of Jennifer Wilcox, Ph.D., March 29, 2019, pg. 36:11-13.

Response: Undisputed that Wilcox testified as quoted above.

1201. During her deposition on March 29, 2019, Dr. Wilcox stated the following:

Q. So your testimony is you think Mr. Lokenvitz knows how the Weston Power Plant works and its refined coal facility works?

A. I'm saying that I don't remember who exactly, you know. We were all in discussion, and in the end I didn't feel like it was necessary, but it wasn't my decision. I was being hired as an expert on this case. If these guys felt that they needed my expert opinion on how things were done at the other plant, I would leave it up to them to bring me to the other plant.

Q. And they didn't ask you to do that?

A. That's right, yeah. But – yeah. Anyway...

Dkt. 74, Deposition of Jennifer Wilcox, Ph.D., March 29, 2019, pg. 39:01-14.

Response: Undisputed that Wilcox testified as quoted above.

1202. During her deposition on March 29, 2019, Dr. Wilcox stated the following:

Q. I should have said – excuse me – thermolabile molecular bromine precursors?

A. I'm of the opinion that any compound that has bromine in it that is injected into the high temperature region of the furnace is going to decompose and form radical species that will ultimately have multiple pathways but you can't deny that, yeah, there's going to be a pathway

of Br₂ formation, molecular bromine. So not only these but any compound that's injected into the furnace, in my opinion, is thermolabile a molecular bromine precursor. Something is injected and it has bromine and it's a compound of bromine. That's exactly what it is.

Dkt. 74, Deposition of Jennifer Wilcox, Ph.D., March 29, 2019, pg. 270:8-21.

Response: Undisputed that Wilcox testified as quoted above.

1203. Dr. Fry's Rebuttal Expert Report States:

I disagree with Dr. Wilcox's opinion that other patents invented by Klaus Oehr, which discuss locations where additives can be added, suggest that the inventor did not have possession of the claimed subject matter disclosed in the '692 Patent as of the filing date. I have reviewed U.S. Patents Nos. 6,250,235; 5,458,803; 5,645,805; and 5,817,282, which Dr. Wilcox mentions in ¶ 108 of her report. In my opinion, these patents confirm that a POSA at the time of the invention of the '692 Patent would understand that the additive can be injected either in the flue gas in the combustion zone or in the flue gas downstream of the combustion zone in order to treat flue gas.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 158.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1204. Dr. Fry's Rebuttal Expert Report States:

For example, the '235 Patent is directed to a method of treating a fossil fuel for combustion that involves heating fuel and an additive in the combustion zone. '235 Patent at 8:12-15. The '235 Patent is discussed throughout the '692 Patent, including in the examples. A POSA would understand from that discussion that the '692 Patent discloses that mixing the additive to the coal before injecting coal with the additive together into the combustion zone is an example of a way in which in the injecting step of the '692 invention can occur. *See, e.g.*, '692 Patent at Example 2.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 159.

Response: Undisputed that the Second Fry Report contains the quoted statement.

1205. Dr. Fry's Rebuttal Expert Report States:

The '803, '802, and '282 Patents further support that a POSA would understand that the additive can be injected either in the flue gas in the combustion zone or in the flue gas downstream of the combustion zone in order to treat flue gas. The '803 Patent is directed to a liquor additive to inject into a flue gas. '803 Patent, 1:6-9. The specification of the '803 Patent explains that the preferred way of accomplishing this is to incorporate the liquor into the fuel, but that the liquor could also be injected into the "flue" (without providing a specific location in the "flue"). '803 Patent, 3:5-7. In my opinion, this confirms that a POSA would understand two things: (1) adding an additive to fuel can accomplish injecting into flue gas, and (2) injecting into a "flue" can accomplish injecting into flue gas. The '803 Patent does not specify precisely where in the "flue" the injection could occur because one of ordinary skill in the art would understand how to select a location. However, the '803 Patent does indicate that the language "introducing into a flue gas" can be accomplished by adding an additive to fuel. '803 Patent, 2:64-3:7. Moreover, the '805 Patent, which is a continuation in part of the '803 Patent uses the same language. The '282 Patent is directed to an invention "for reducing the nitrogen oxide content of a flue gas produced by the combustion of fuel by introducing a nitrogen oxide removal agent into either nitrogen oxide contaminated flue gas or the fuel to be combusted." '282 Patent, Abstract. The '282 Patent explains that the nitrogen oxide removal agent can be incorporated into the fuel, or may be injected separately into the combustion zone or the "flue." '282 Patent, 3:19-21. Similarly to the '803 Patent, one of skill in the art would understand from reading the '282 Patent specification that adding an additive to fuel can accomplish injecting into flue gas.

Dkt. 79, Rebuttal Expert Report of Andrew Fry, Ph.D. Regarding Validity, ¶ 160.

Response: Undisputed that the Second Fry Report contains the quoted statement.

Dated: June 13, 2019

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on June 13, 2019, I caused to be electronically filed the foregoing document with the Clerk of the Court using the Court's CM/ECF system, which will send notification of such filing to all counsel of record.

/s/ Richard Mark
Richard Mark